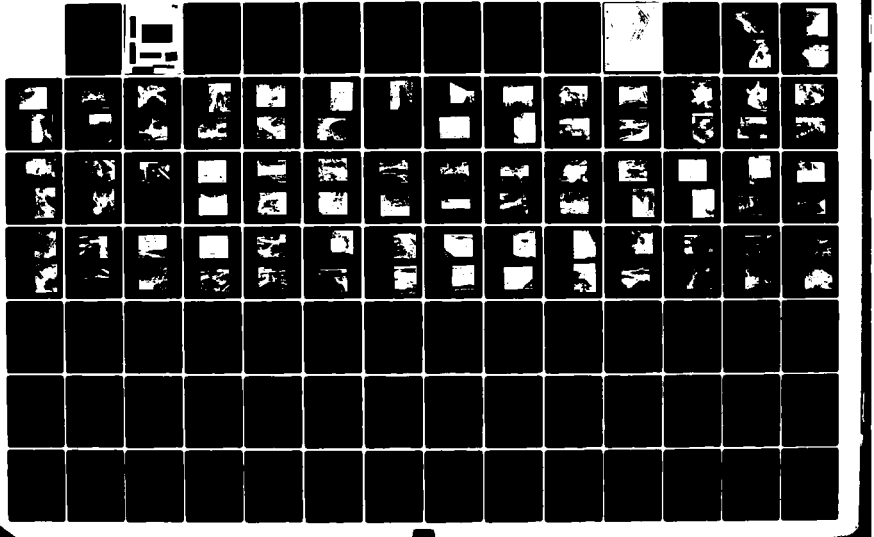
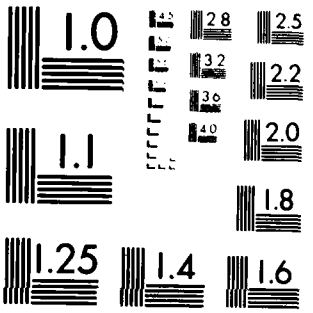
AD-A125 057 SMITHLAND DAM OHIO RIVER FOUNDATION REPORT VOLUME II 1/3
PHOTOGRAPHS AND FOUNDATION MAPS(U) JONES-TEER SMITHLAND
KY R SCHIPP ET AL. FEB 83 DACW62-75-C-0015

UNCLASSIFIED F/G 13/13 NL





FOUNDATION REPORT

SMITHLAND DAM

OHIO RIVER

VOLUME II of II

PHOTOGRAPHS AND FOUNDATION MAPS

Contract No. DACW62-75-C-0015

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

2

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. A125057	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Foundation Report Smithland Dam, Ohio River		5. TYPE OF REPORT & PERIOD COVERED Final 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Rick Schipp Bryan Moser		8. CONTRACT OR GRANT NUMBER(s) DACW62-75-C-0015
9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. Army Corps of Engineers Louisville District, Construction Division P.O. Box 59, Louisville, Kentucky 40201		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS As Above		12. REPORT DATE February 1983 13. NUMBER OF PAGES 2 Volumes
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office) As Above		15. SECURITY CLASS. (of this report) Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release, distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

Volume I & II

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Navigation
Dam
Ohio River
Smithland, Kentucky

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

>This report presents complete foundation records of conditions encountered during construction and the methods used to adapt the dam structures to these conditions. The report covers the construction of the Smithland Dam and Weir only. The construction for the twin 1200 foot locks is covered under a previous report. The high lift gated section of the dam consists of 12 piers and 11 gated bays. The dam section starts on the Kentucky side of the river-wall of the locks and extends 1400 feet to the Kentucky side of pier 12. A fixed weir consisting of granular filled and concrete capped (con't over)

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Con't

steel piling cells extends from pier 12 some 1728 feet to the Kentucky bank.

VOLUME II

SMITHLAND DAM

FOUNDATION REPORT

J. A. JONES CONSTRUCTION CO.
& NELLO L. TEER COMPANY
(A JOINT VENTURE)

CONTRACT NO. DACW 62-75-C-0015

VOLUME II :

SMITHLAND DAM

FOUNDATION REPORT

INDEX

PART I - PHOTOGRAPHS

Description	Photograph No.
Cutoff Trench	1 thru 17
Gate Bays, Stilling Basin	18 thru 36
Piers No. 1 through No. 12	37 thru 86

PART II - FOUNDATION MAPS

Description	Drawing No.
Pier No. 1	FPII-1, FPII-2
Pier No. 2	FPII-3 thru FPII-7
Pier No. 3	FPII-8 thru FPII-10
Pier No. 4	FPII-11 thru FPII-13
Pier No. 5	FPII-14 thru FPII-17
Pier No. 6	FPII-18 thru FPII-22
Pier No. 7	FPII-23 thru FPII-27
Pier No. 8	FPII-28 thru FPII-31
Pier No. 9	FPII-32 thru FPII-36
Pier No. 10	FPII-37 thru FPII-40
Pier No. 11	FPII-41 thru FPII-44
Pier No. 12	FPII-45 thru FPII-48

INDEX (Cont.)

Description	Drawing No.
Pier No. 12, Sill	FPII-49 thru FPII-51
Training Wall	FPII-52 thru FPII-55
Bay No. 1, Cutoff Trench	FPII-56
Bay No. 2, Cutoff Trench	FPII-57
Bay No. 3, Cutoff Trench	FPII-58
Bay No. 4, Cutoff Trench	FPII-59
Bay No. 5, Cutoff Trench	FPII-60
Bay No. 6, Cutoff Trench	FPII-61
Bay No. 7, Cutoff Trench	FPII-62
Bay No. 8, Cutoff Trench	FPII-63
Bay No. 9, Cutoff Trench	FPII-64
Bay No. 10, Cutoff Trench	FPII-65
Bay No. 11, Cutoff Trench	FPII-66
Bay No. 1, U/S Face	FPII-67
Bay No. 2, U/S Face	FPII-68
Bay No. 4, U/S Face	FPII-69
Bay No. 5, U/S Face	FPII-70
Bay No. 7, U/S Face	FPII-71
Bay No. 8, U/S Face	FPII-72
Bay No. 9, Plan View	FPII-73
Bay No. 9, U/S Face	FPII-74

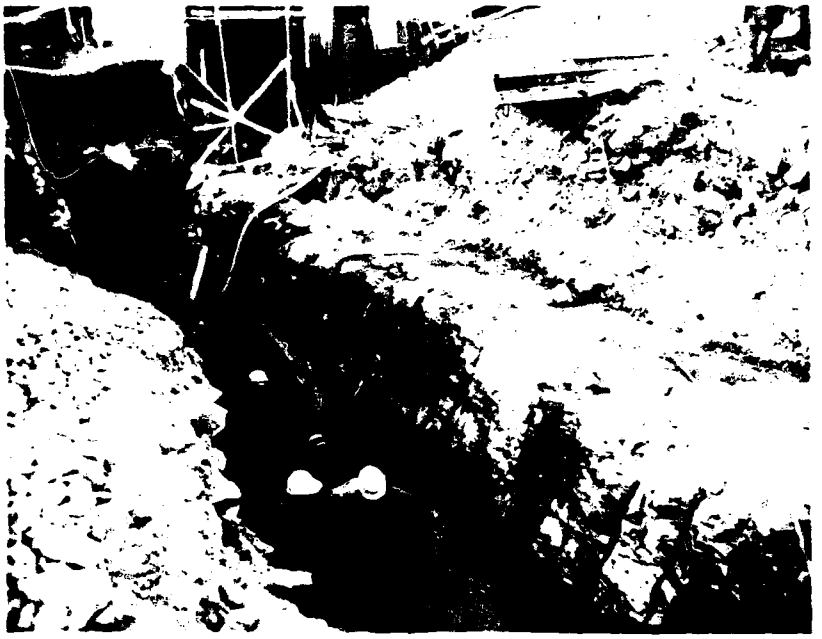
INDEX (Cont.)

Description	Drawing No.
Bay No. 10, U/S Face	FPII-75
Bay No. 11, U/S Face	FPII-76
Gate Bay No. 1, Foundation	FPII-77
Gate Bay No. 2, Foundation	FPII-78
Gate Bay No. 3, Foundation	FPII-79
Gate Bay No. 4, Foundation	FPII-80
D/S Stilling Basin, Plan View	FPII-81
Gate Bay No. 5, Foundation	FPII-82
Stilling Basin No. 8	FPII-83
Geologic Cross Section - Pier No. 1, Bay No. 1	FPII-84
Geologic Cross Section - Pier No. 2, Bay No. 2	FPII-85
Geologic Cross Section - Pier No. 3, Pay No. 3	FPII-86
Geologic Cross Section - Pier No. 4, Bay No. 4	FPII-87
Geologic Cross Section - Pier No. 5, Bay No. 5	FPII-88
Geologic Cross Section - Pier No. 6, Bay No. 6	FPII-89
Geologic Cross Section - Pier No. 7, Bay No. 7	FPII-90
Geologic Cross Section - Pier No. 8, Bay No. 8	FPII-91
Geologic Cross Section - Pier No. 9, Bay No. 9	FPII-92
Geologic Cross Section - Pier No. 10, Bay No. 10	FPII-93
Geologic Cross Section - Pier No. 11, Bay No. 11	FPII-94
Geologic Cross Section - Pier No. 12	FPII-95

PART I

PHOTOGRAPHS

1. Cut-off trench, Gate Bay No. 1, View from D/S, Ky. Side, Looking toward U/S face. 12 Nov 76



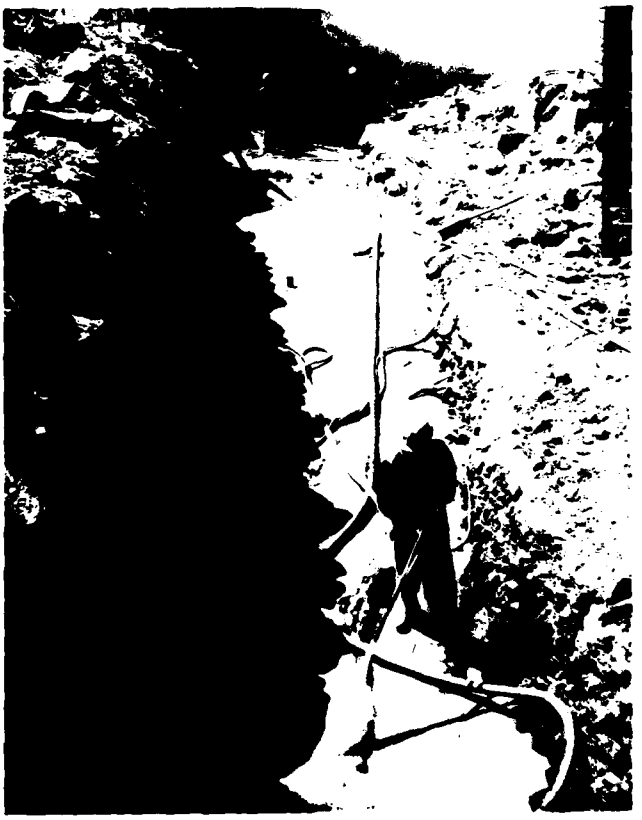
2. Cut-off trench, Gate Bay No. 1, View from Pier 1. 12 Nov 76

3. Cut-off trench, Gate Bay No. 2, View from Pier 2, Facing Pier 3, 3 Dec 76

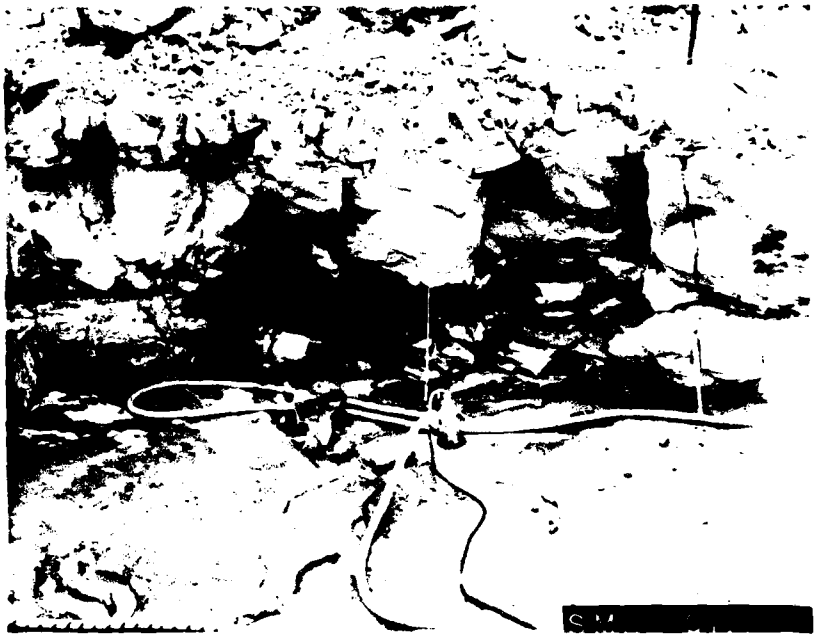
4. Cut-off trench, Gate Bay No. 4, View from Pier 4 facing Ky., Showing downstream face. 8 Dec 76

5. Cut-off trench, Gate Bay No. 4, View from Pier 4 facing Ky. showing upstream face. 8 Dec 76

6. Cut-off trench, Gate Bay No. 5, View from Pier 6 showing foundation cleanup. 16 Mar 77



7. Cut-off trench, Gate Bay No. 5, Solutioning in downstream face
17 Mar 77



8. Cut-off trench, Gate Bay No. 5, View of healed joint in foundation.
18 Mar 77

9. Cut-off trench, Gate Bay No. 7, Foundation. 24 May 77

10. Cut-off trench, Gate Bay No. 7, Solution cavity in downstream face. 24 May 77

11. Cut-off trench, Gate Bay No. 8, View from Pier 9.
7 Jun 77

12. Cut-off trench, Gate Bay No. 9, Downstream face. 23 Jun 77

13. Cut-off trench, Gate Bay No. 9, View from Pier 10 looking toward Pier 9. 23 Jun 77

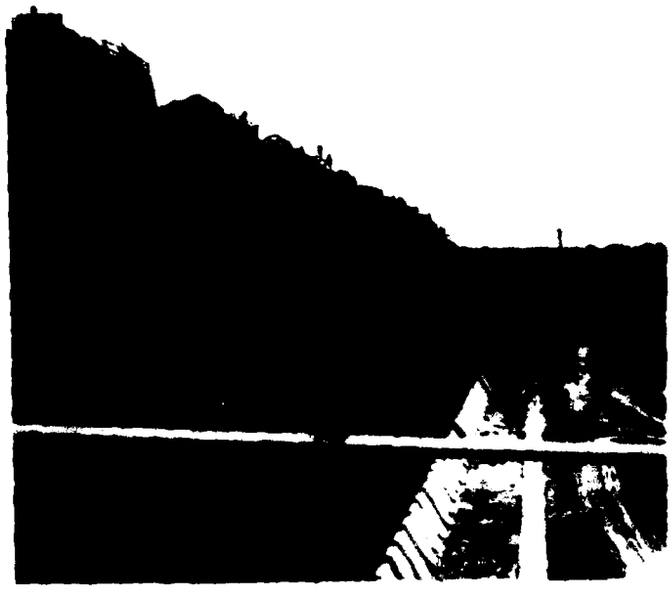
14. Cut-off trench, Gate Bay No. 9, View from Pier 10 looking at upstream face. 23 Jun 77

15. Cut-off trench, Gate Bay No. 10, View from Pier 10 towards Pier 11. 30 Jun 77

16. Cut-off trench, Gate Bay No. 10, View from Pier 11, Looking at unstream face. 30 Jun 77

17. Cut-off trench, Gate Bay No. 11, View from Pier 12. 30 Jun 77

18. Looking down stilling basins from lockwall to Ky. Note Overbreak. 12 Jun 78



NOTE: Portions of U/S faces of Gate Bays can be seen on Pier foundation photographs.

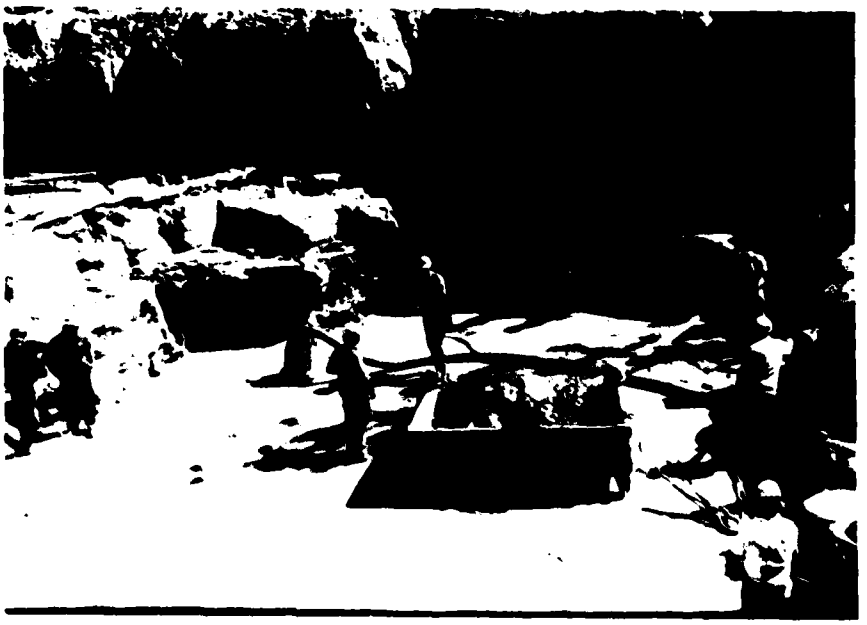
19. Downstream pre-split face, Gate Bay No. 1, Sta. 0+49.5D, Sta. 72+60S±, Elev. 260-270±. 13 Dec 77

20. Downstream pre-split face (Sta. 0+49.5D), Gate Bay No. 2, Sta. 73+40S to 73+70S±, Elev. 260-270±. 19 Dec 77

21. Solution channel in 10' strip, Gate Bay No. 2, Sta. 72+50S to 72+60S, Sta. 0+39.5D to 0+49.5D, Looking upstream. 19 Dec 77

22. Clean-up in 10' wide section, Sta. 0+39.50 to 0+49.50, Stilling Basin No. 3, Mudseam at 74+25S±. 21 Dec 77

23. Downstream face, Stilling Basin No. 5, Illinois 1/4 of bay, Undergoing final clean-up, Bottom Elev. 253.5±. 5 Apr 78



24. Upstream face, Gate Bay No. 5. 31 May 77

25. Looking downstream into Stilling Basin No. 5 from tainter gate. Solutioned area on right prior to removal. Trench through rest of bay later cleaned out and filled with dental concrete. 4 Apr 78

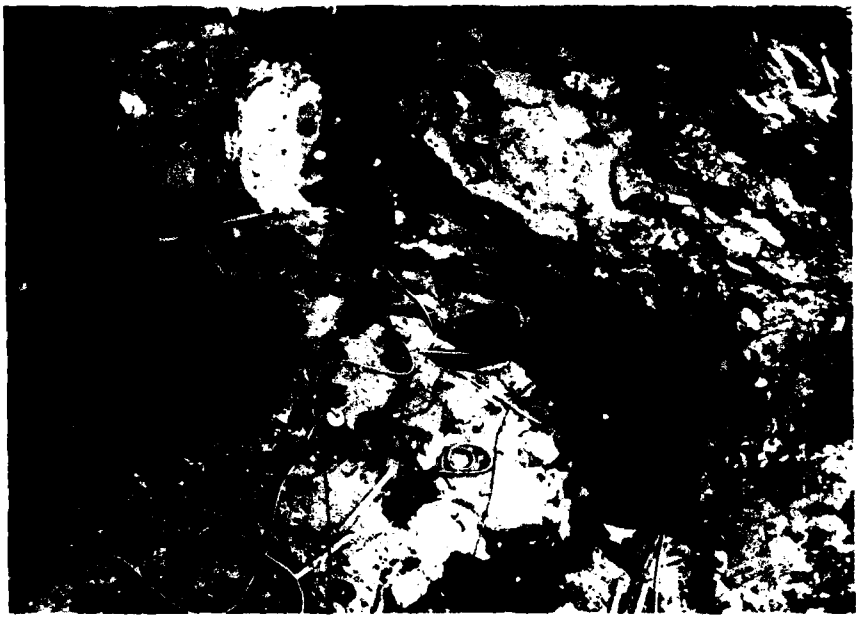
26. Solution channel, Center of Stilling Basin No. 6, Sta. 78+25S±: 0+13.5U to 0+46.5U, Looking toward Illinois. 29 Apr 78

27. Solution channel, Stilling Basin No. 6, Illinois side and downstream of Pier 7. 3 May 78

28. Solution channel Stilling Basin No. 6, Ky. Side of Pier 6. 27 Apr 78

29. Stilling Basin No. 7, Looking toward Ky. 8 May 78

30. Stilling Basin No. 8, Solution channel, View from Pier 8. 31 May 78

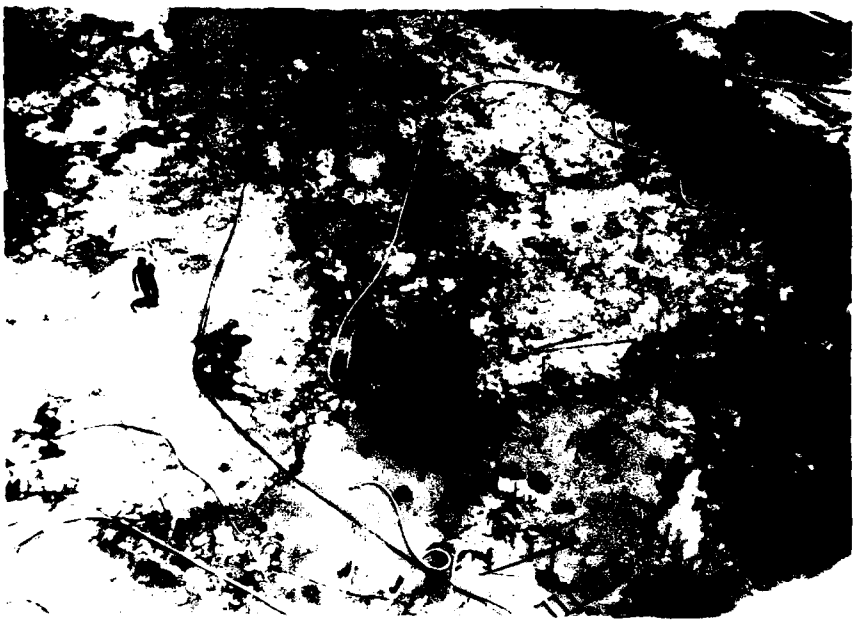


31. Stilling Basin No. 8, Showing rock "bridge" over solution channel after excavation, Looking downstream. 31 May 78

32. Stilling Basin No. 9, Hole in upstream Ill. corner, Due to overbreak and solution channel. 31 Jun 78

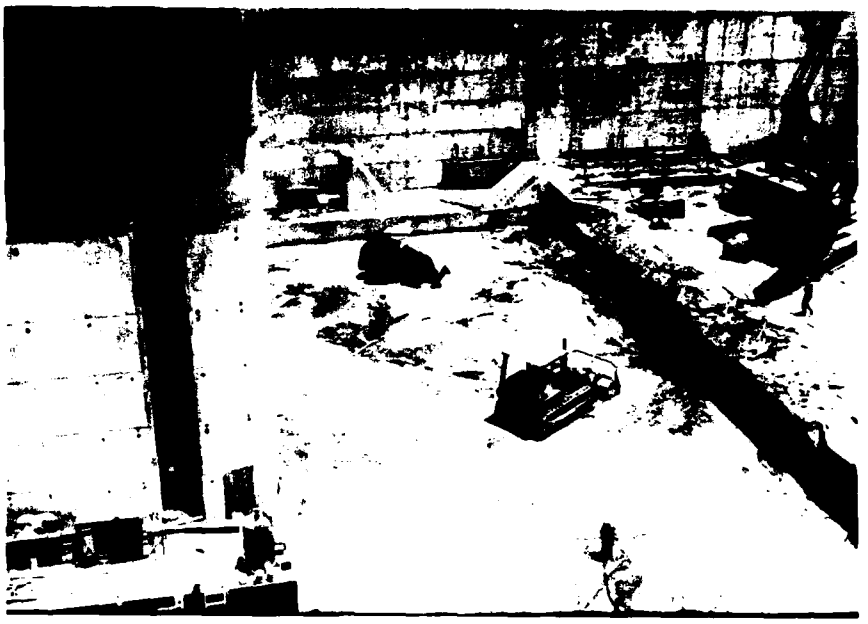
33. Kentucky half of Stilling Basin No. 9, Low area just downstream of ogee section which was placed separately to level foundation for anchor rod installation. 15 Jun 78

34. Stilling Basin No. 10, Looking from Pier 10 at installation of rock anchors. 30 Jun 78



35. Stilling Basin No. 10, Solution area, Bottom Elev. 252±, Sta. 83+11S to 83+28S and 0+41D to 0+47D. 10 Jul 78

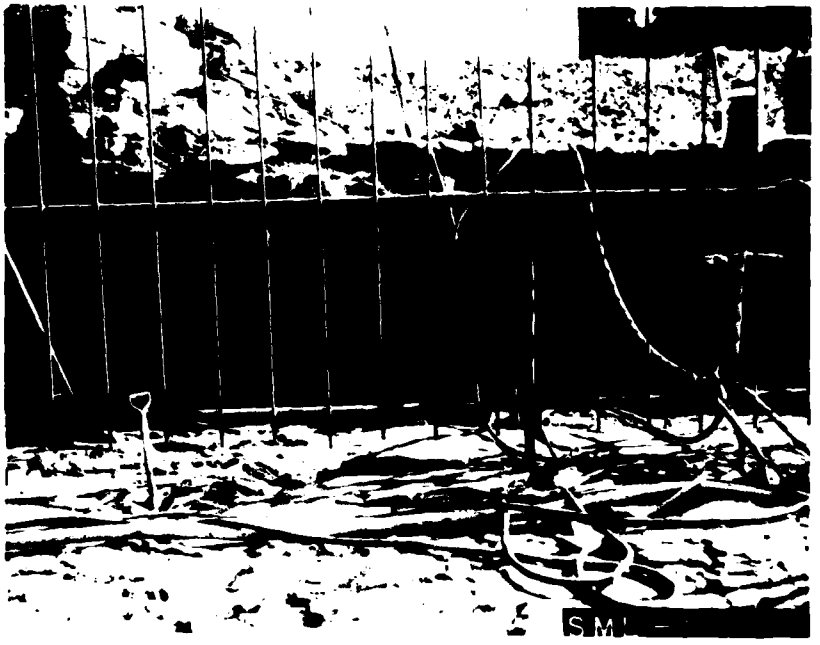
36. Stilling Basin No. 11, Looking from Pier 10 towards Ky. 30 Jun 78



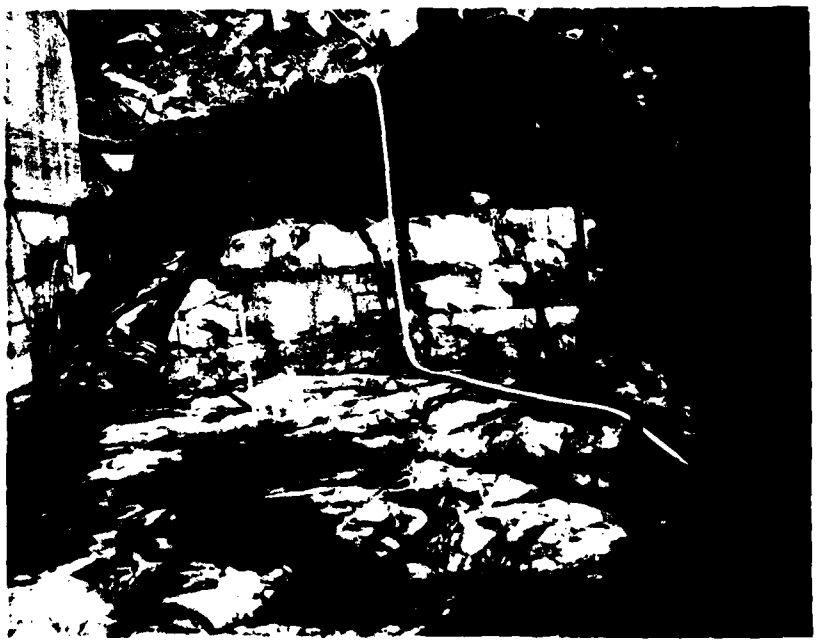
37. Pier No. 1, Presplit line looking downstream from Sta. 1+?7U.
25 Aug 76

38. Pier No. 1, Rock face jut downstream of cut-off trench, Kv. side.
13 Oct 76

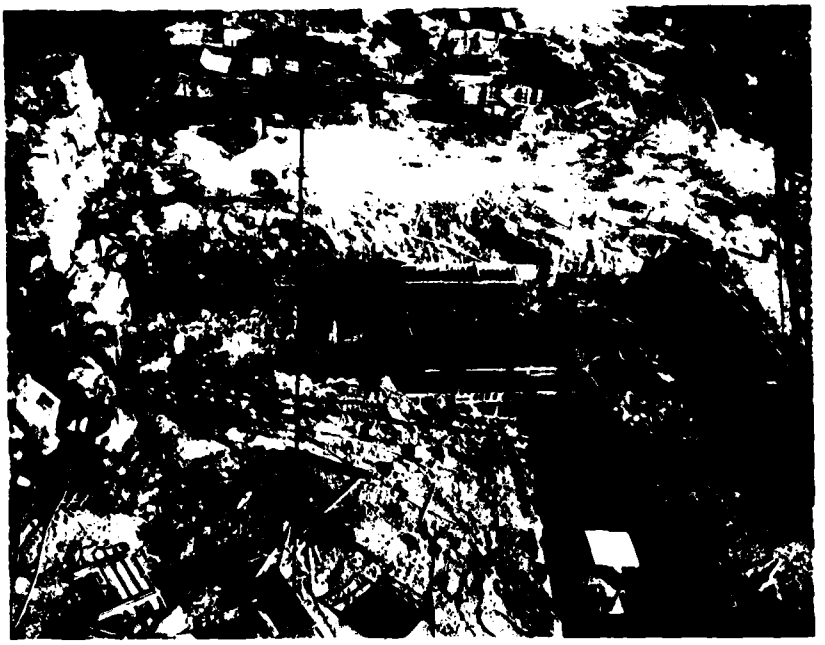
39. Pier No. 1, Foundation and side wall. 13 Oct 76



40. Pier No. 1, Upstream face. 9 Oct 76



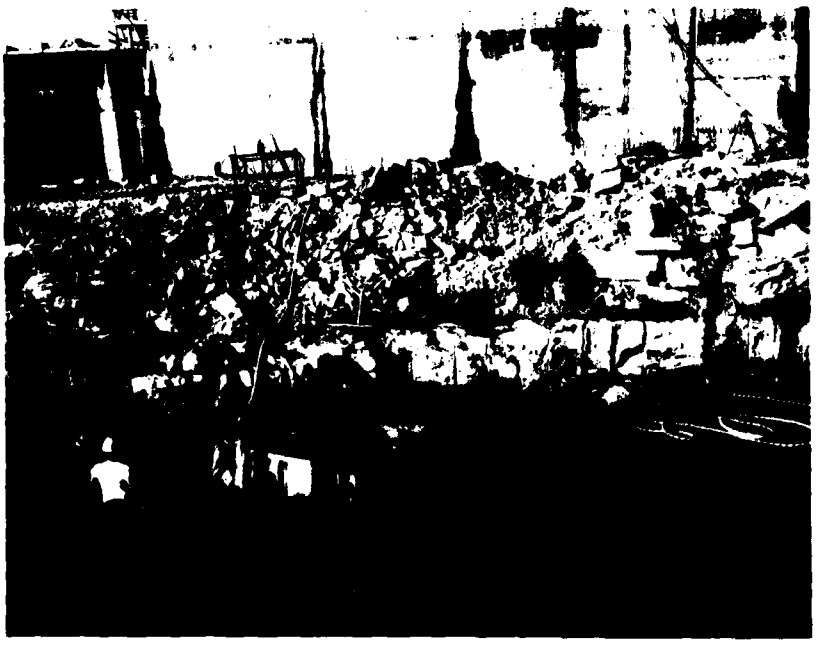
41. Pier No. 2, View from lockwall looking towards Kv. 26 Oct 76



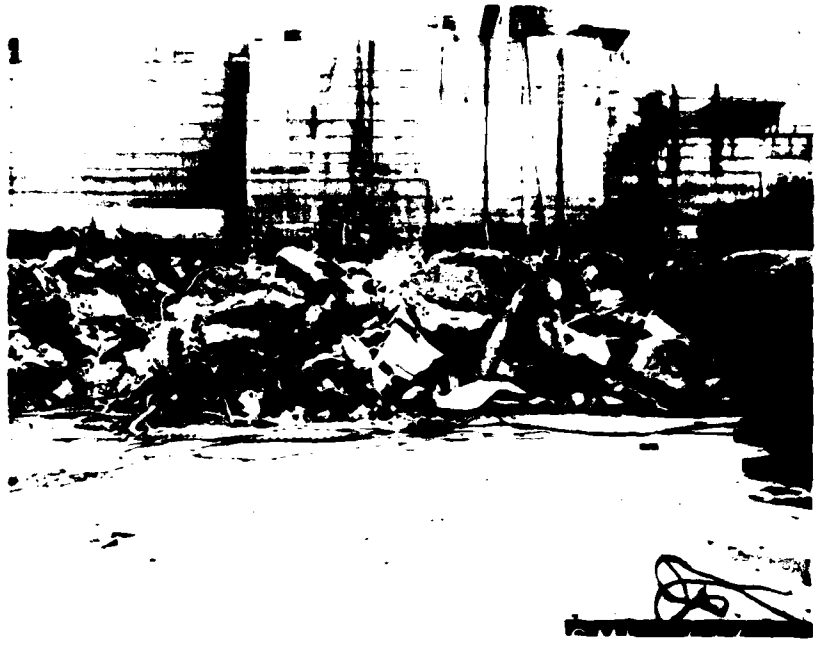
42. Pier No. 2, View from inside looking at upstream rock face. 26 Oct 76

43. Pier No. 2, downstream face. 26 Oct 76

44. Pier No. 2, Illinois side in area of cut-off trench. 15 Oct 76



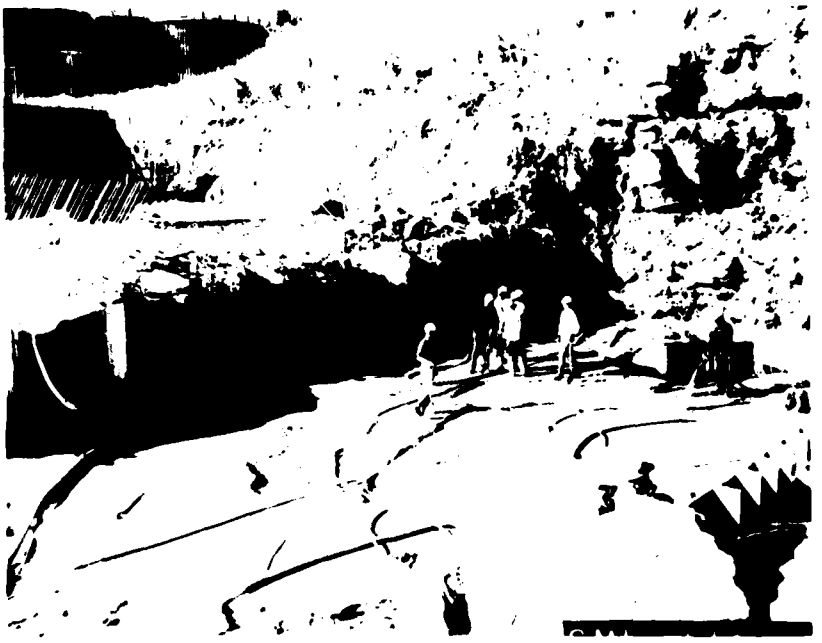
45. Pier No. 3, Rock condition on Ill. side prior to forming. 16 Oct 76



46. Pier No. 3, View along center line showing Ky. side prior to form work. 16 Oct 76

47. Pier No. 3, View from inside excavation showing downstream rock face. 20 Oct 76

48. Pier No. 4, Upstream Ill. corner. 18 Nov 76



49. Pier No. 4, View from downstream Ill. side showing downstream face and Ky. corner of excavation. 18 Nov 76

50. Pier No. 4, Ky. side just upstream of cut-off trench. 18 Nov 76

51. Pier No. 4, Upstream face. 18 Nov 76

52. Pier No. 5, View from downstream end showing excavation progress. 8 Dec 76

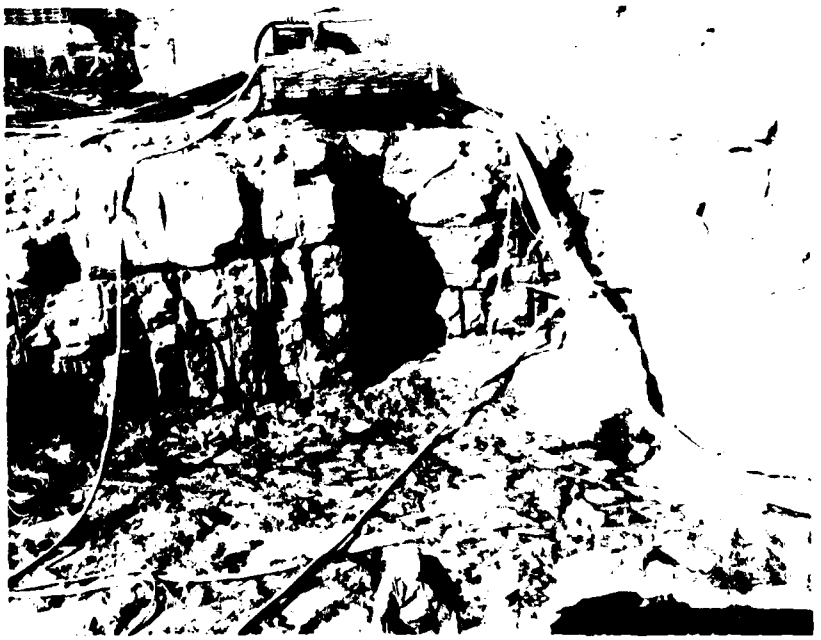
53. Pier No. 5, Looking at downstream face. 20 Dec 76

54. Pier No. 5, View of Mid section of Ky. side. 10 Dec 76

(Upstream and downstream sections very similar)

55. Pier No. 5, View of mid-upstream Ill. side. Bottom Elev. 225±. 10 Dec 76

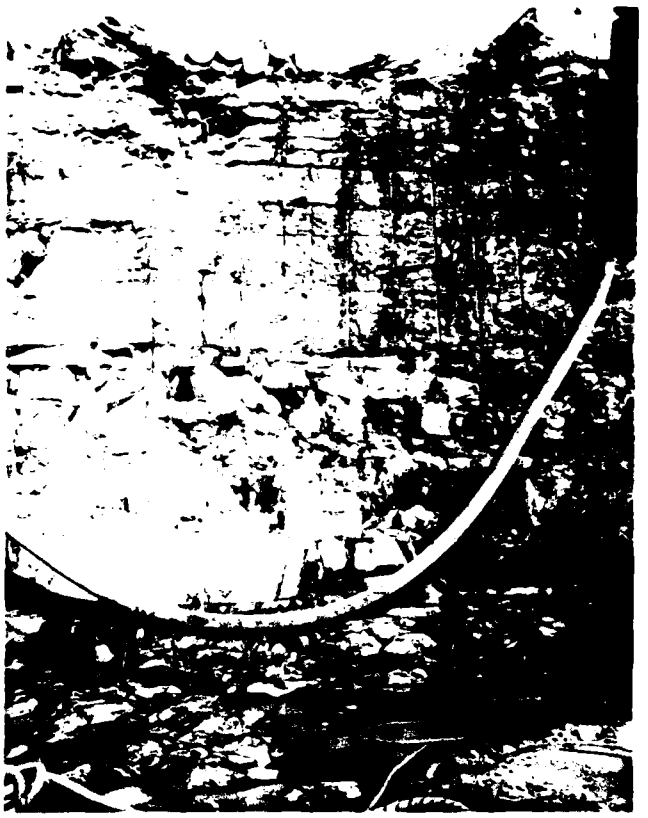
56. Pier No. 6, Upstream Ill. corner of pier. 18 Feb 77



57. Pier No. 6, Upstream Ky. side. 22 Feb 77

58. Pier No. 6, Downstream Ky. side. 22 Feb 77

59. Pier No. 6, Middle of upstream face.
18 Feb 77



60. Pier No. 6, Overbreak on downstream end of Pier 6. Ruler at approx. neat line. View from Ky. side.
22 Feb 77

61. Pier No. 7, View from upstream end looking at downstream end. 10 May 77

62. Pier No. 7, View from Ill. side looking at Ky. side. Note solutioning in foundation floor. 10 May 77

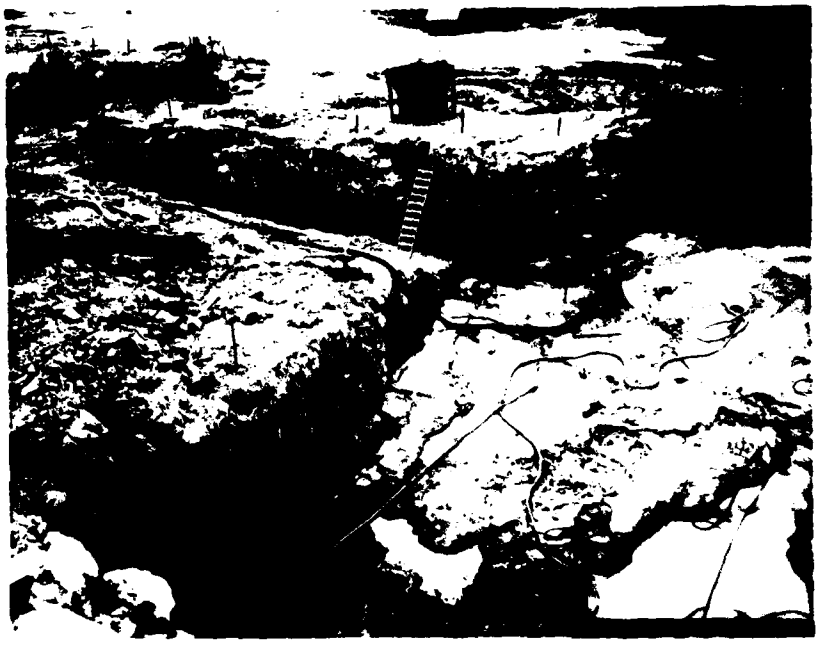
63. Pier No. 7, View of upstream Ill. side. Solutioning at founding Elev. 250±. 12 May 77

64. Pier No. 7, View from Ky. side showing Ill. side just upstream of cut-off trench. 11 May 77

65. Pier No. 7, Upstream face. 12 May 77

66. Pier No. 8, Looking downstream at Ill. face and cut-off trench in Gate Bay No. 7. 2 May 77

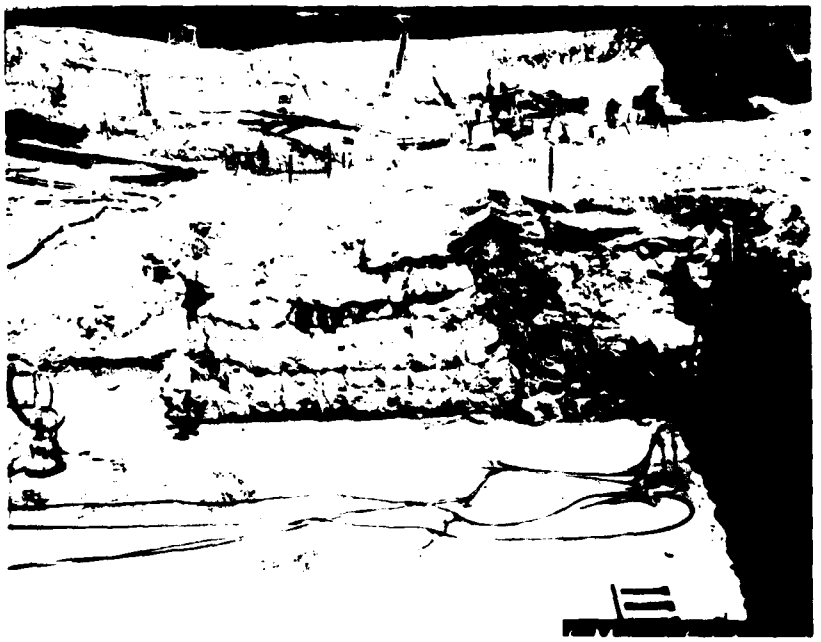
67. Pier No. 8, Looking downstream at Ky. face and cut-off trench in Gate Bay No. 8. 2 May 77



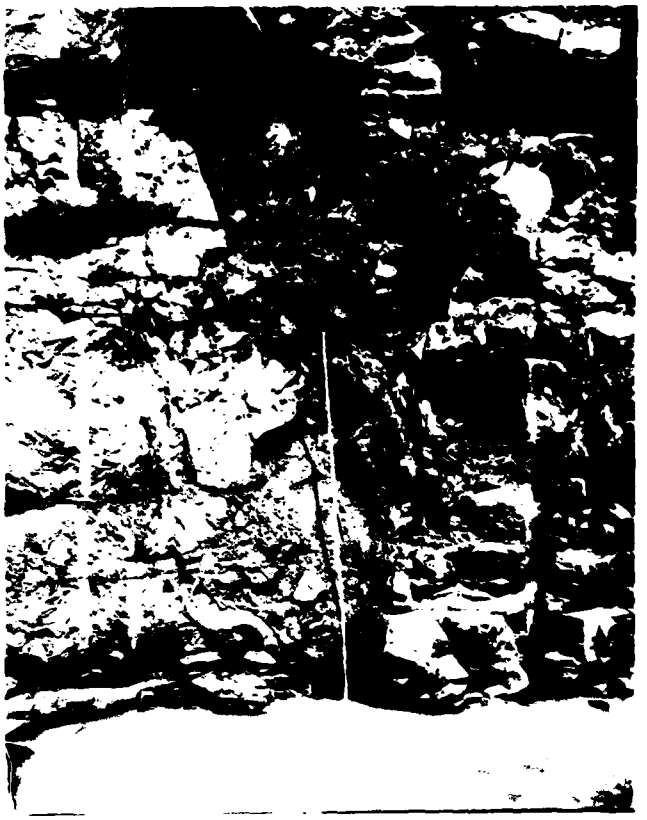
68. Pier No. 8, Upstream face. 4 May 77

69. Pier No. 8, Close-up of solution channel in upstream face. 4 May 77

70. Pier No. 8, View of Kv. face just downstream of cut-off trench. 4 May 77



71. Pier No. 8, Close-up of solution channel in Ky. face just downstream of cut-off trench. 4 May 77



72. Pier No. 10, View along Ill. side, Looking downstream. 2 May 77

73. Pier No. 10, View from upstream Ill. corner showing Ky. side. 2 May 77

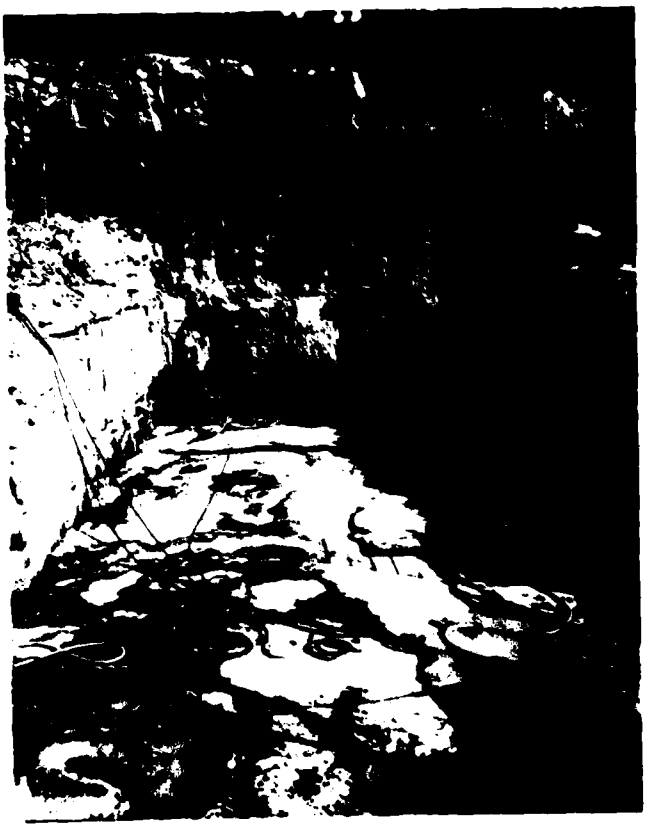
74. Pier No. 10, View from downstream end showing upstream face. Concrete at Elev. 250. 2 May 77

75. Pier No. 10, View from upstream end showing downstream face. Concrete at 250. 2 May 77

76. Pier No. 11, View from upstream Ky. side showing Ill. face and cut-off treanch in Gate Bay No. 10. 31 May 77

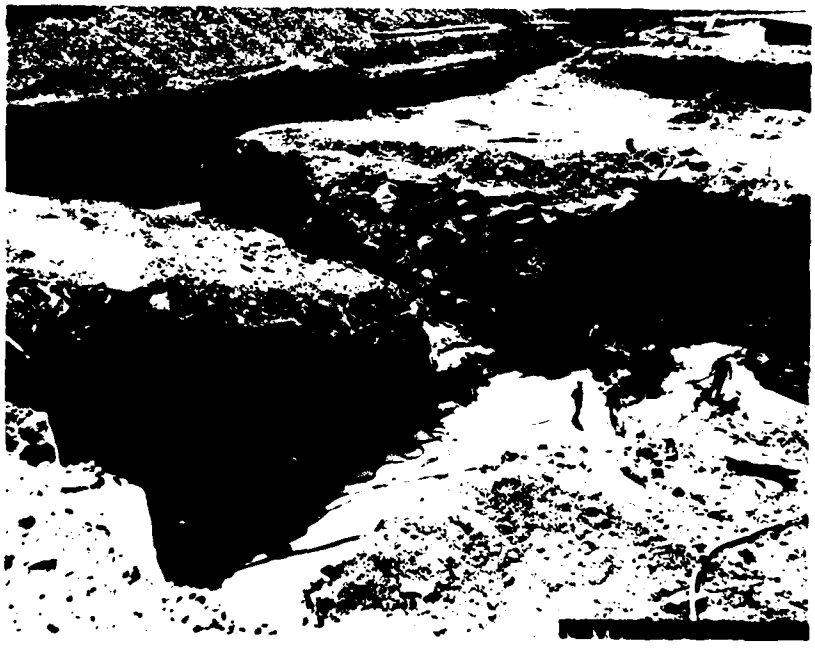
77. Pier No. 11, Solution channel in downstream Ill. corner of excavation. 28 May 77

78. Pier No. 11, View from downstream end showing upstream face. 28 May 77



79. Pier No. 11, View of solutioning at Elev. 246 bedding plane in upstream face. 27 May 77

80. Pier No. 11, View from upstream Ill. corner showing Kv. face and cut-off trench in Gate Bay No. 11. 31 May 77



81. Pier No. 12, View from just downstream of cut-off trench showing Ky. side. Pre-split on 6"cc. 6 Jun 77

82. Pier No. 12 and Training Wall, View from upstream end looking downstream. 14 Jun 77

83. Pier No. 12 and Training Wall, View from downstream end looking upstream. 7 Jun 77

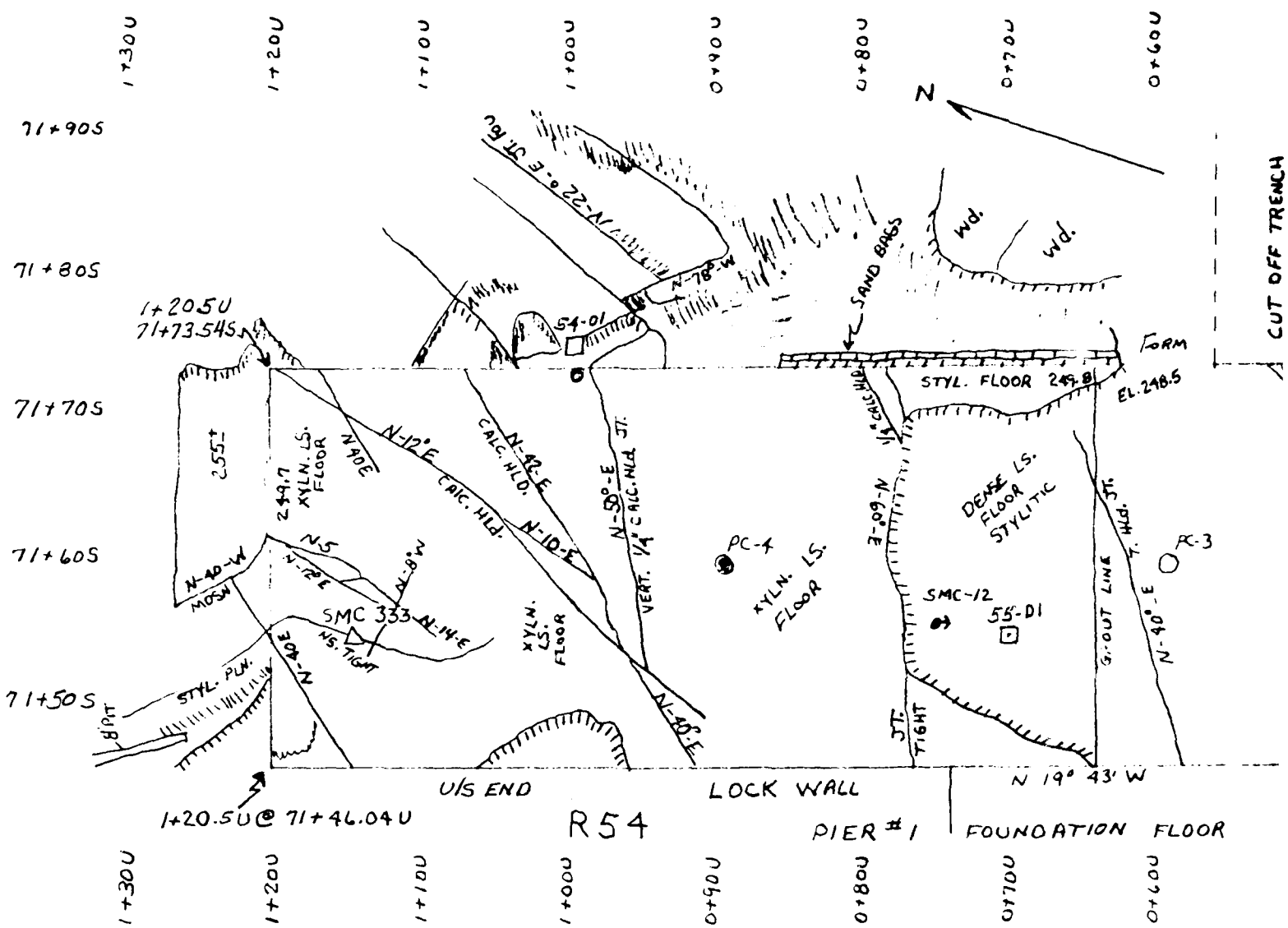
84. Pier No. 12, Solution channel and joint in upstream face, Ill. corner at left. 12 Jun 77

85. Pier No. 12, Joint in upstream face of pier. 14 Jun 77

86. Training Wall, View of rock conditions in Kv. face, Bottom Elev. 240±. 6 Jun 77

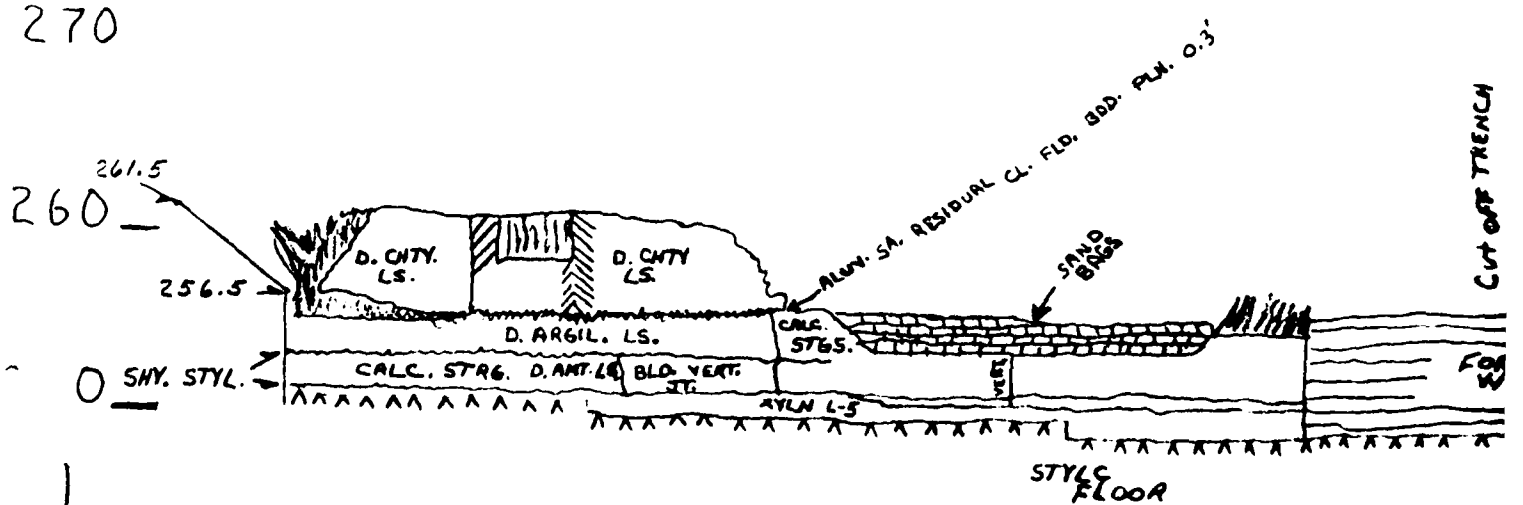
PART II

FOUNDATION MAPS



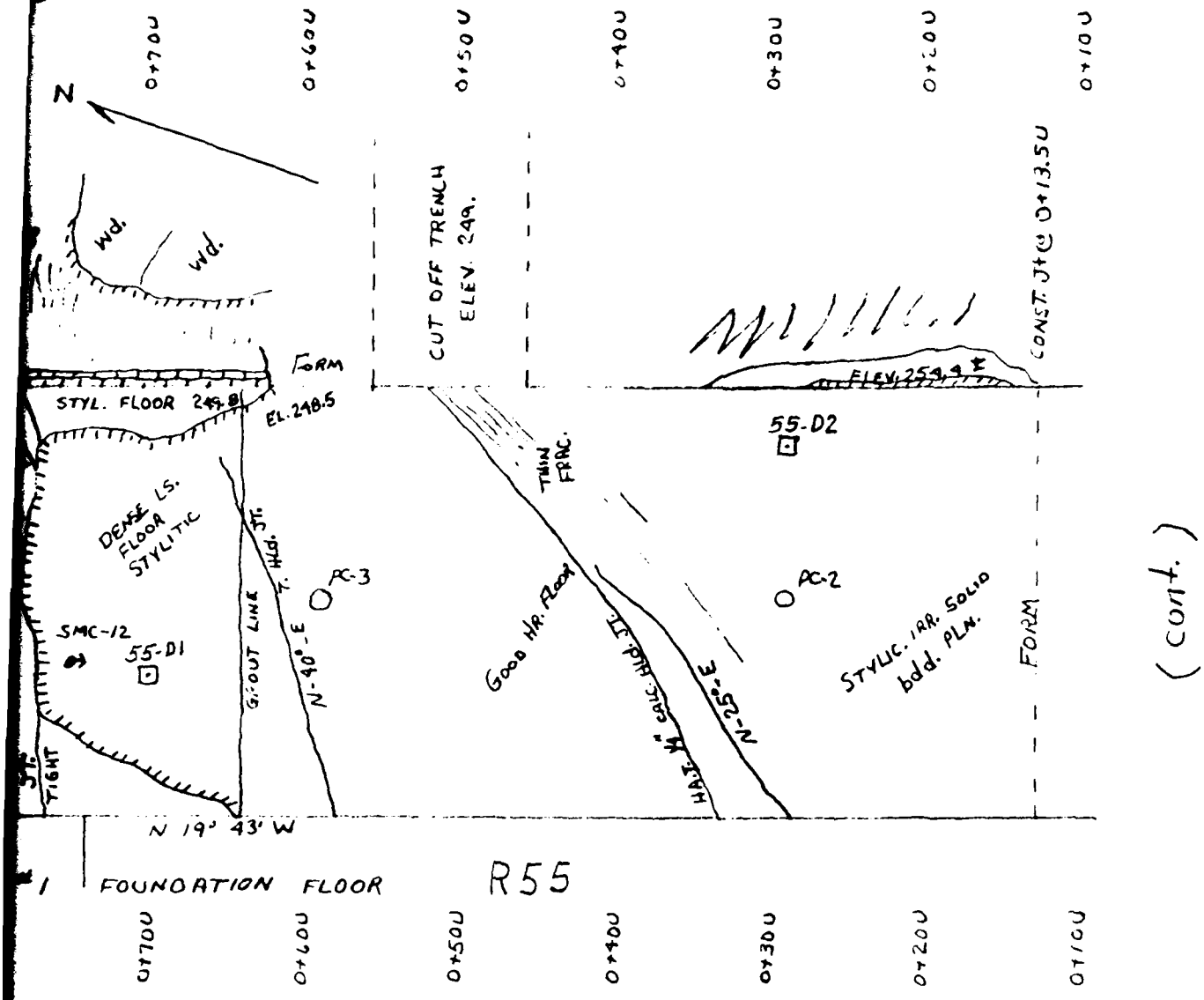
280

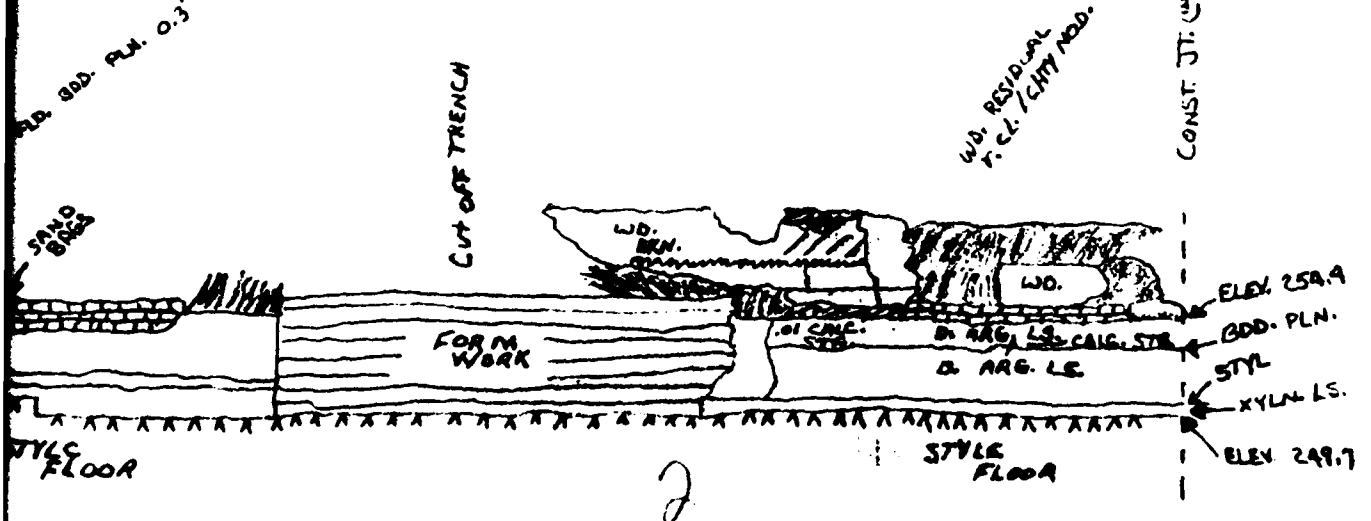
270



1

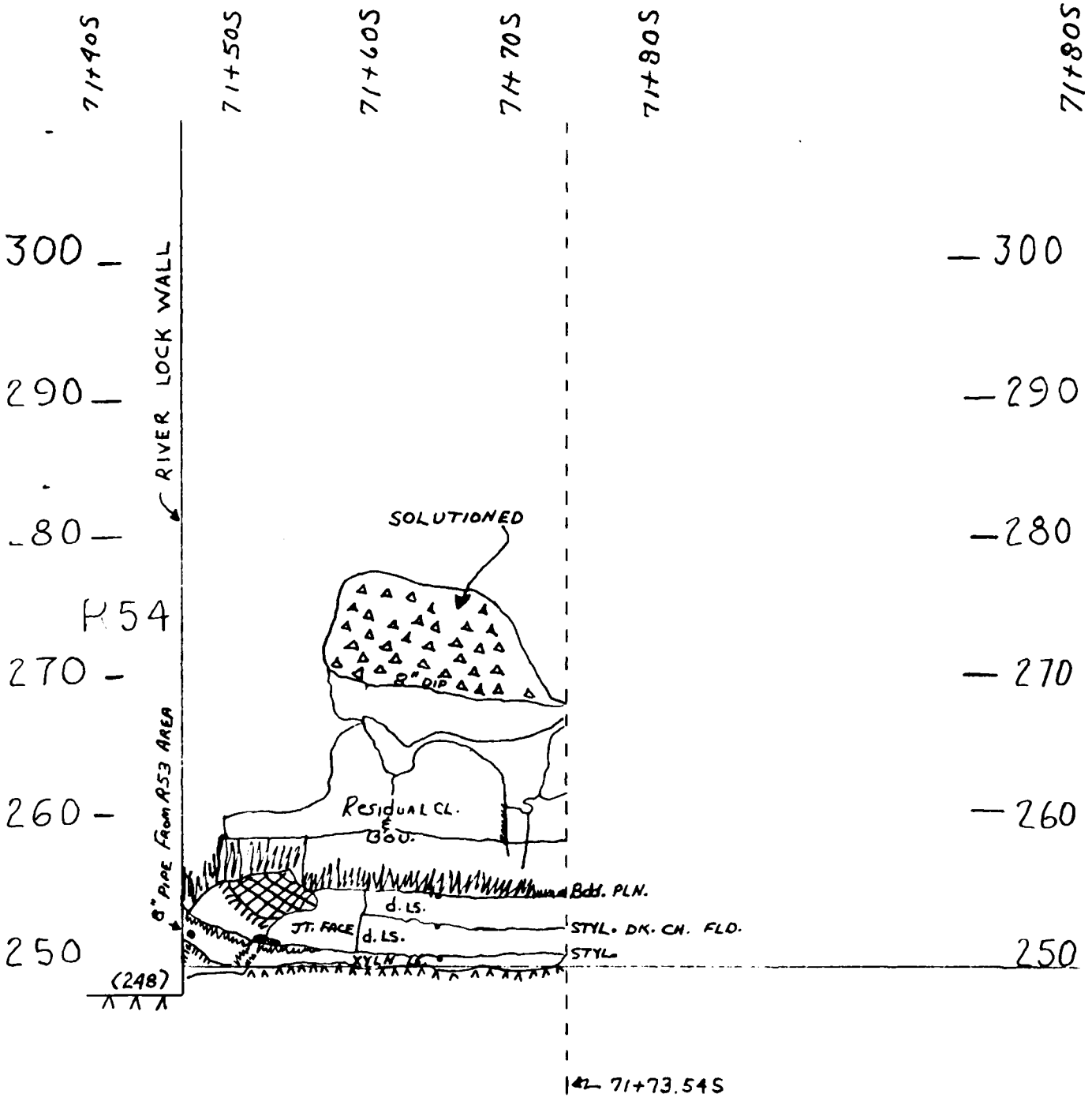
PIER 1 - KY. SIDE


0+70 U
0+60 U
0+50 U
0+40 U
0+30 U
0+20 U
0+10 U
N
wd.
wd.
CUT OFF TRENCH
ELEV. 249.
CONST. JT @ 0+13.5 U
FORM
STYL. FLOOR 249.8
EL. 248.5
ELEV. 259.9 ±
55-D2
TWIN FRAC.
DENSE LS. FLOOR STYLITIC
GROUT LINE
T. HARD ST.
PC-3
PC-2
SMC-12
55-D1
GOOD HR. FLOOR
HAIR LINE CALC. HARD ST.
N-40°-E
N-25°-E
STYLIC. IRR. SOLID bdd. PLN.
FORM
(cont.)
TIGHT
N 19° 43' W
1 FOUNDATION FLOOR
R55


0+70 U
0+60 U
0+50 U
0+40 U
0+30 U
0+20 U
0+10 U
CONST. JT. @ 0+13.5 U
W.D. RESIDUAL T. CL. / CHTY MOD.
CUT OFF TRENCH
SAND BAGS
W.D.
W.D.
ELEV. 259.9
GOOD. PLN.
STYL
XYLM LS.
ELEV 249.7
FORM WORK
.01 CALC. STR.
ARG. LS.
STYLE FLOOR
STYLE FLOOR

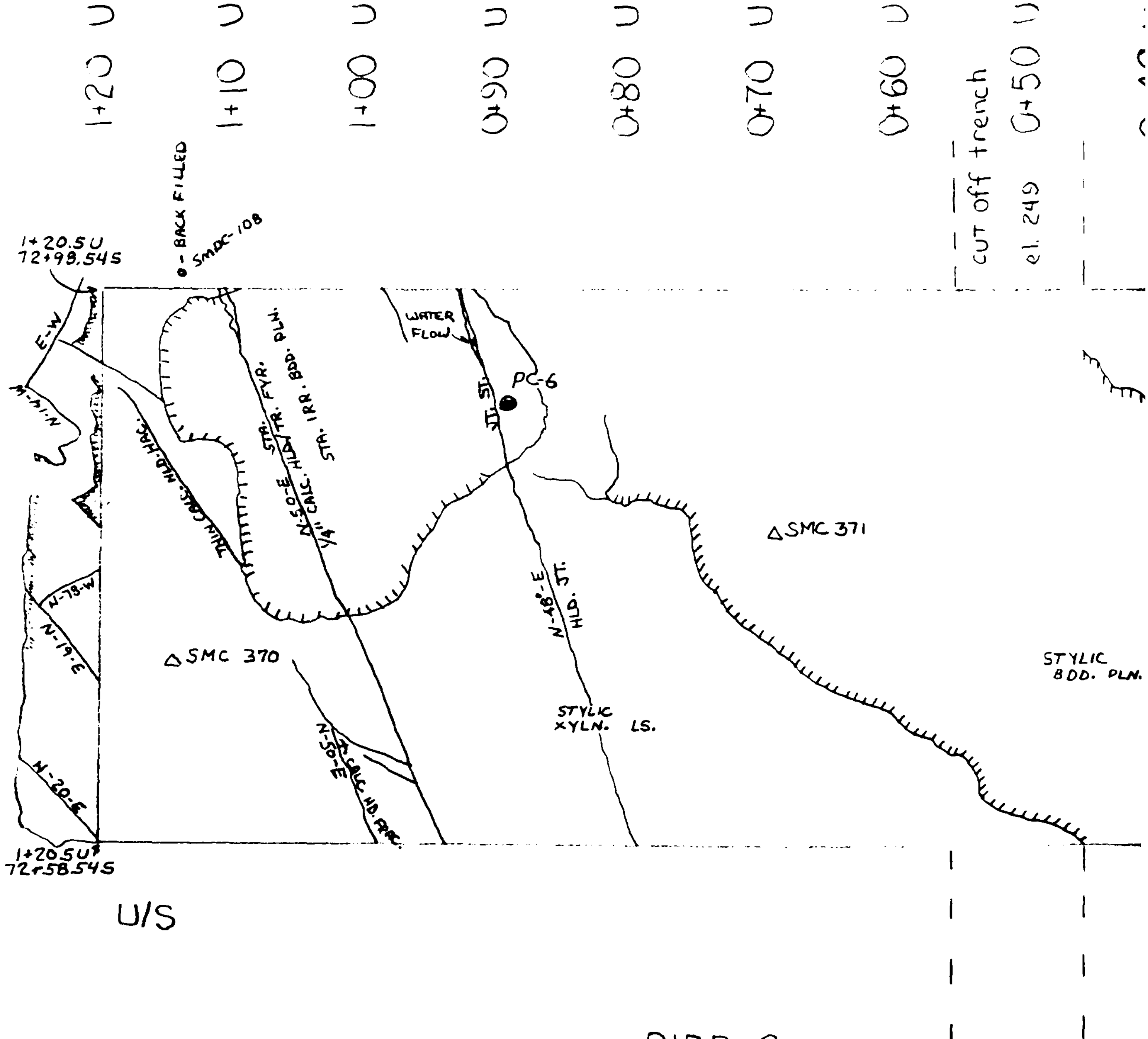
FP II - 1

BY ... DATE ... SUBJECT ... SHEET NO ... OF ...
CHKD BY ... DATE ... JOB NO ...



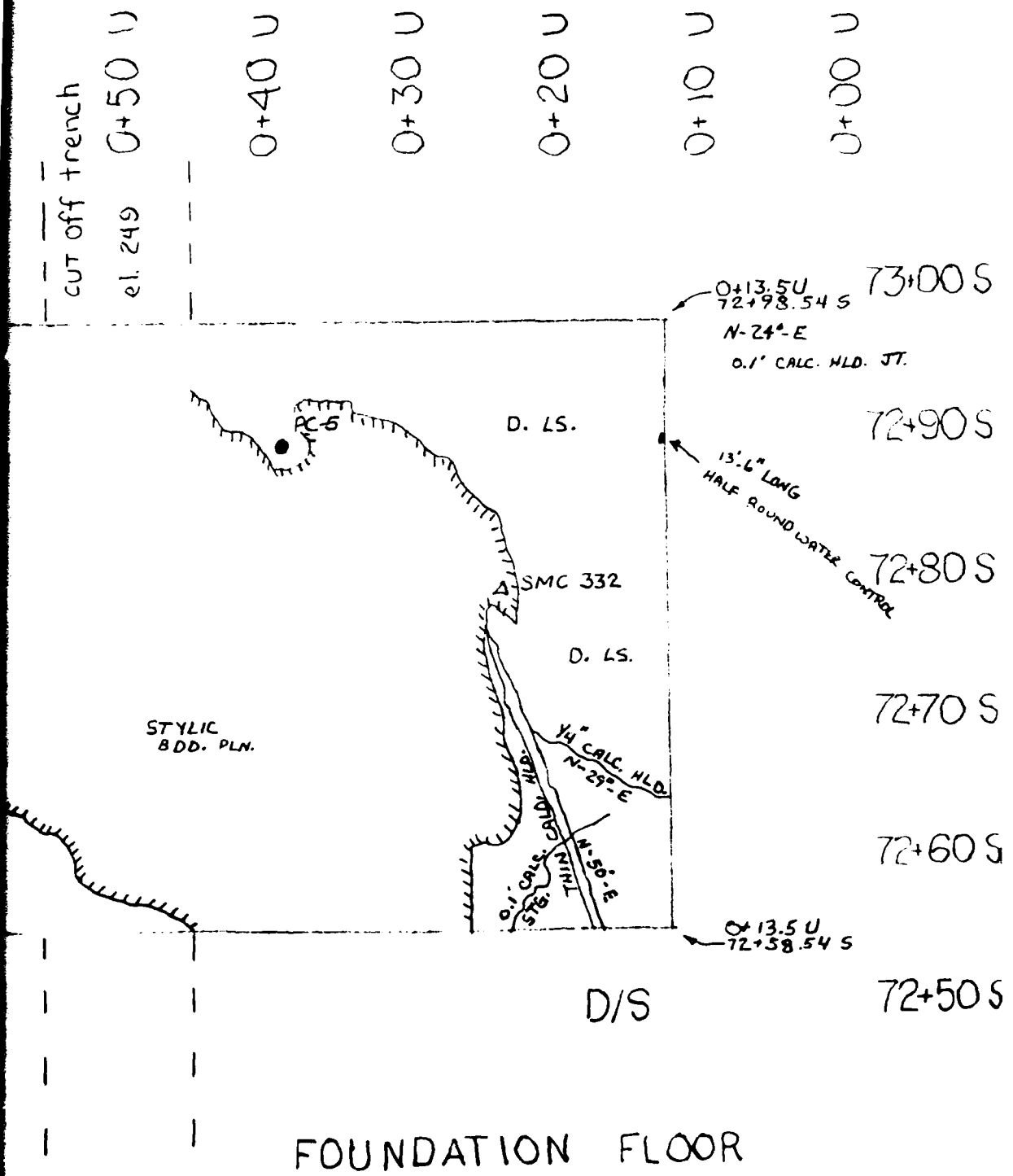
W/S 110

PIER 1


1+20 U
1+10 U
1+00 U
0+90 U
0+80 U
0+70 U
0+60 U
0+50 U
cut off trench
el. 249
BACK FILLED
SMDC-108
1+20.5 U
72+98.54 S
E-W
WATER FLOW
PC-6
JT. ST.
N-50-E
STA. FYR.
1/4" CALC. HLD. TR. IRR. BDD. PLN.
STA. IRR. BDD. PLN.
THIN CALC. HLD. FRAC.
△SMC 371
N-48°-E
HLD. JT.
△SMC 370
N-78-W
N-19-E
N-20-E
N-50-E
CALC. HD. FRAC.
STYLIC XYLN. LS.
STYLIC BDD. PLN.
1+20.5 U
72+58.54 S
U/S

PIER-2

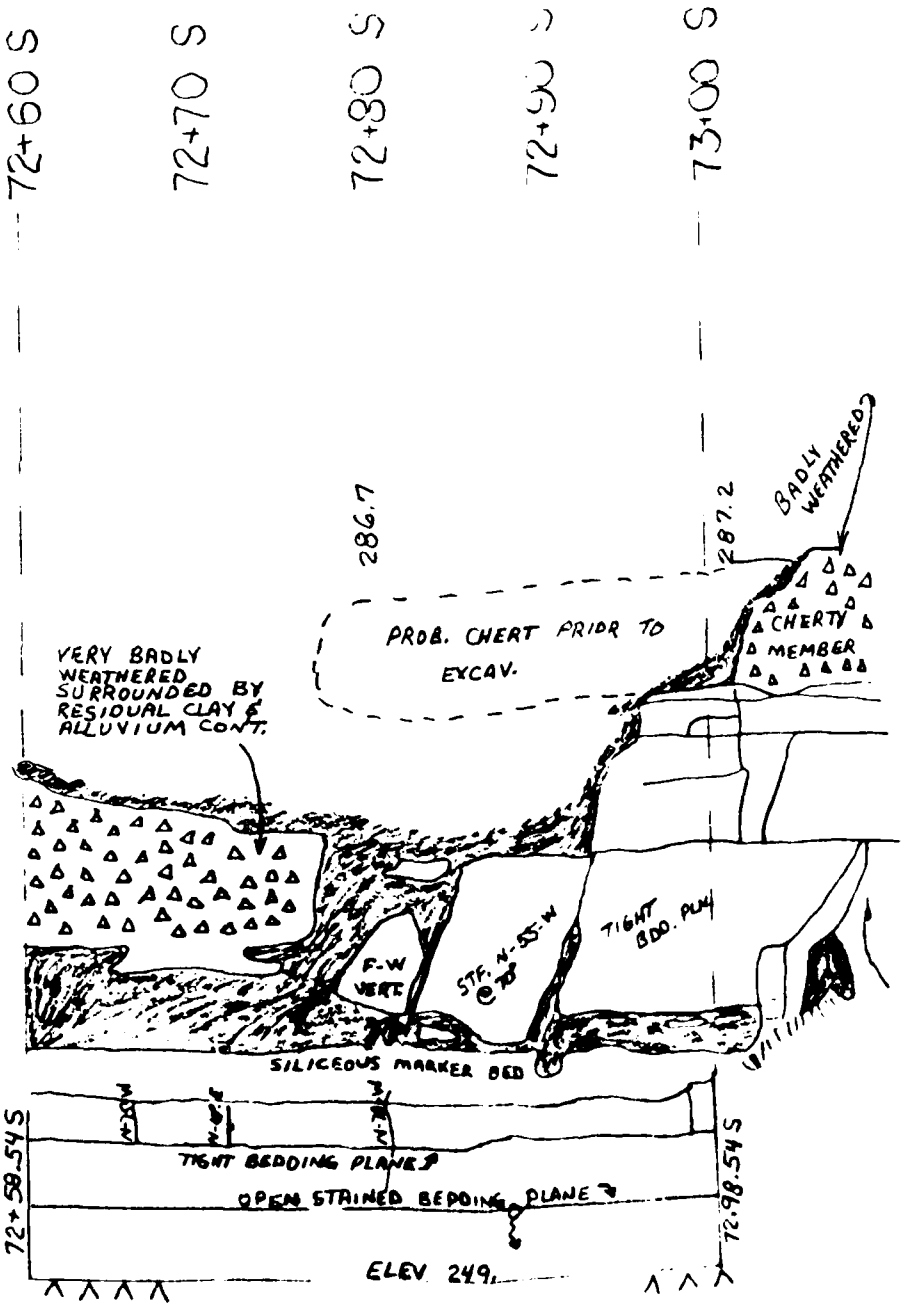
1



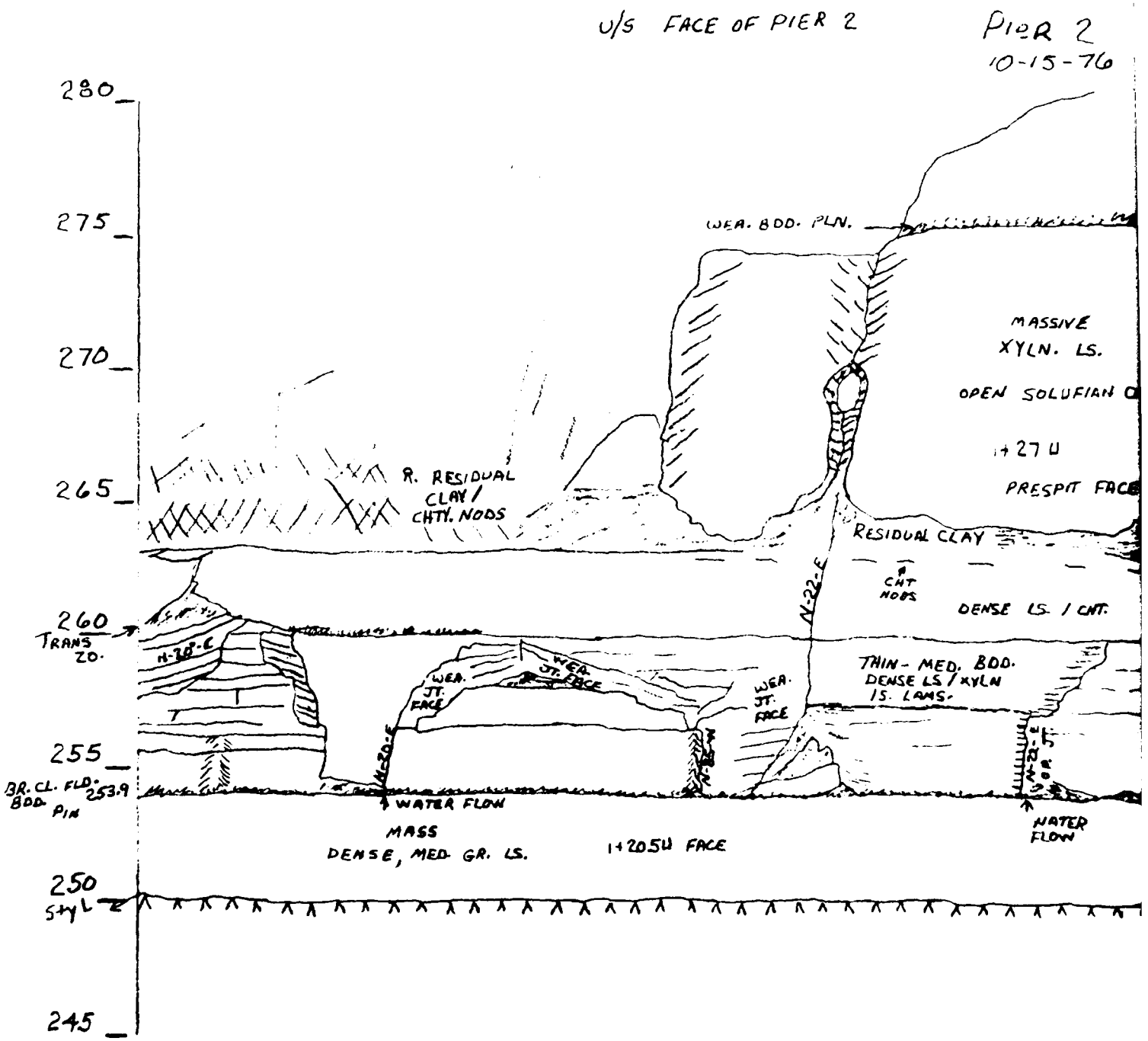
FOUNDATION FLOOR

2

73+00S
72+90S
72+80S
72+70S
72+60S
72+50S
72+50S
300
290
280
270
260
250
72+98.54S
72+58.54S
ELEV. 249.
1
D/S END
PIER 2


72+50 S
72+60 S
72+70 S
72+80 S
72+90 S
73+00 S
286.7
287.2
BADLY WEATHERED
PROB. CHERT PRIOR TO EXCAV.
CHERTY MEMBER
VERY BADLY WEATHERED SURROUNDED BY RESIDUAL CLAY & ALLUVIUM CONT.
F-W VERT.
STF. N-55°-W
TIGHT BDD. PLN
SILICEOUS MARKER BED
TIGHT BEDDING PLANES
OPEN STAINED BEDDING PLANE
72+58.54 S
72+98.54 S
ELEV 249.
PIER 2
U/S END

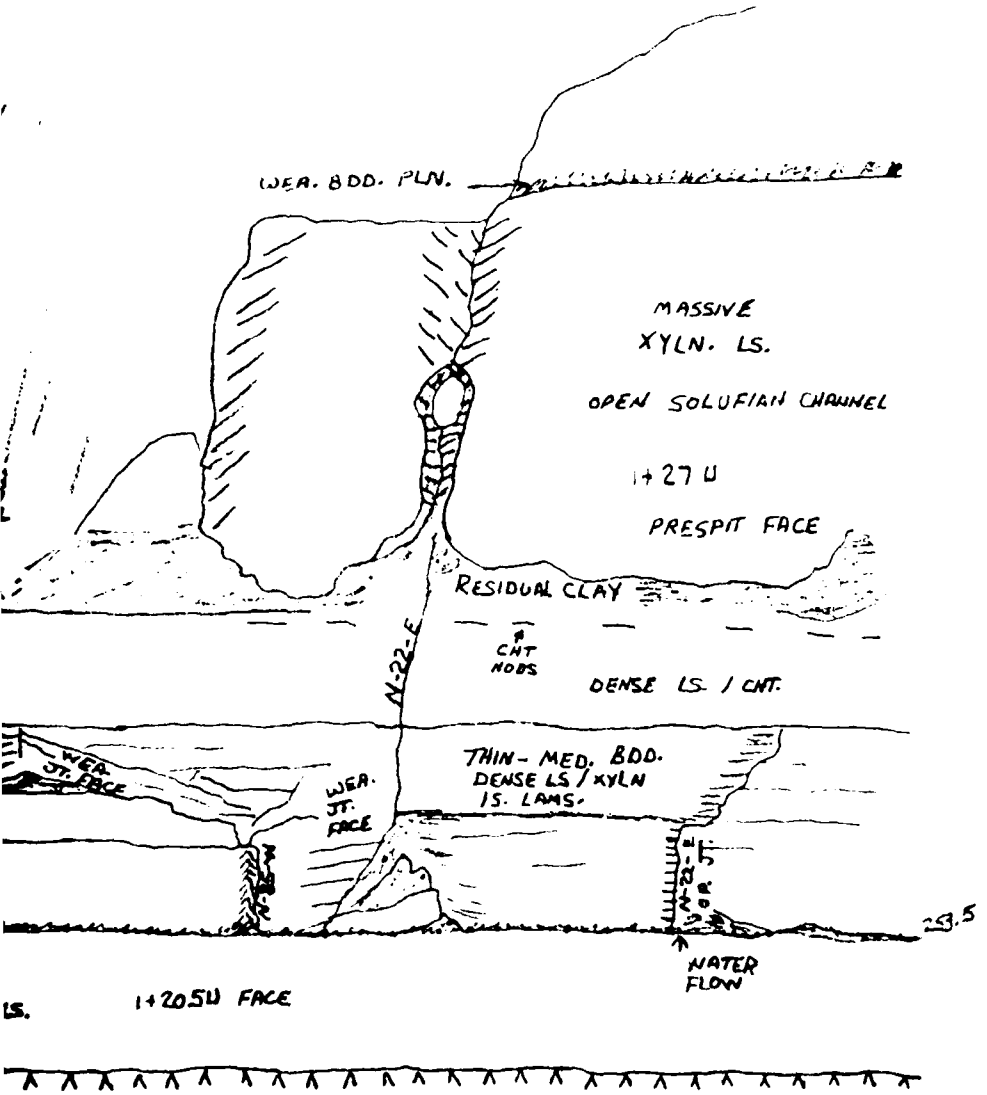
FP II-4


U/S FACE OF PIER 2
PIER 2
10-15-76
280
275
270
265
260
255
250
245
WEA. BDD. PLN.
MASSIVE
XYLN. LS.
OPEN SOLUTION
1+27 U
PRESPIT FACE
R. RESIDUAL
CLAY /
CHTY. NODS
RESIDUAL CLAY
CHT
NODS
DENSE LS / CHT.
N-22-E
TRANS
ZO.
N-28-E
WEA.
JT.
FACE
WEA.
JT.
FACE
WEA.
JT.
FACE
THIN - MED. BDD.
DENSE LS / XYLN
LS. LAMS.
N-20-E
N-22-E
BR. CL. FLD.
BDD.
PIN
253.9
WATER FLOW
MASS
DENSE, MED. GR. LS.
1+20.5U FACE
WATER
FLOW
STYL

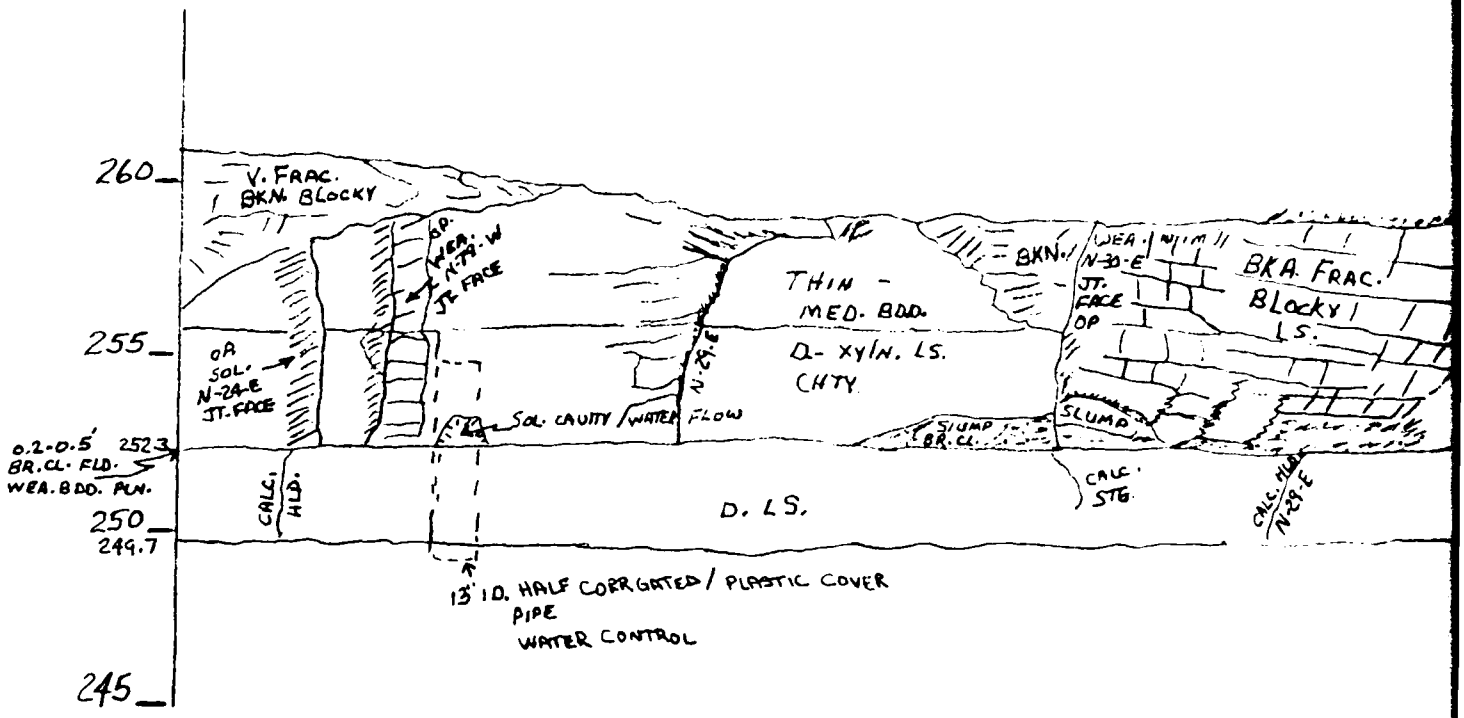
ILL.

U/S FACE OF PIER 2

PIER 2
10-15-76

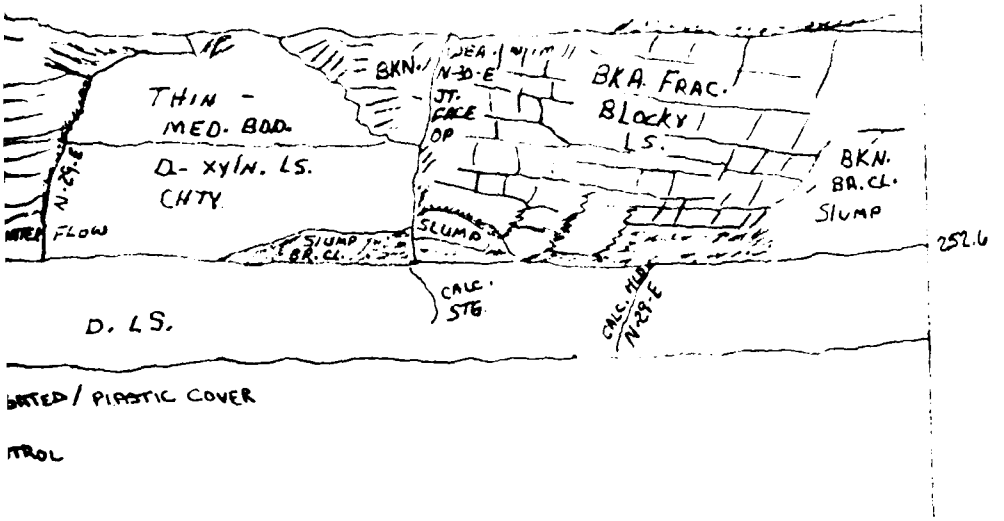


KY.



KY.

D/S END PIER #2
STA. 0+13.5 U



BITED / PLASTIC COVER

TROL

ILL.

'S END PIER #2
HA. 0+13.5 U

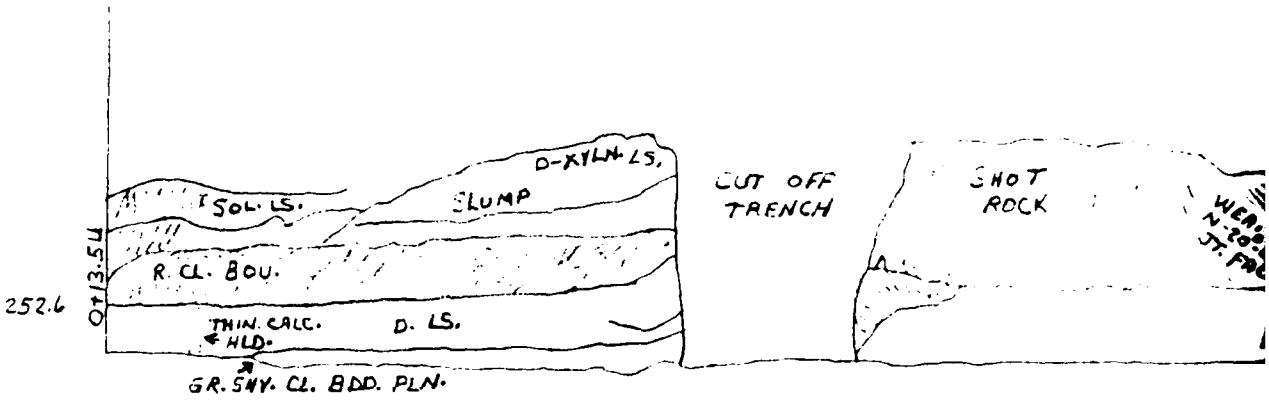
0+10 U 0+20 U 0+30 U 0+40 U 0+50 U 0+60 U 0+70 U

288

270

260

250



ILL. SIDE PIER 2

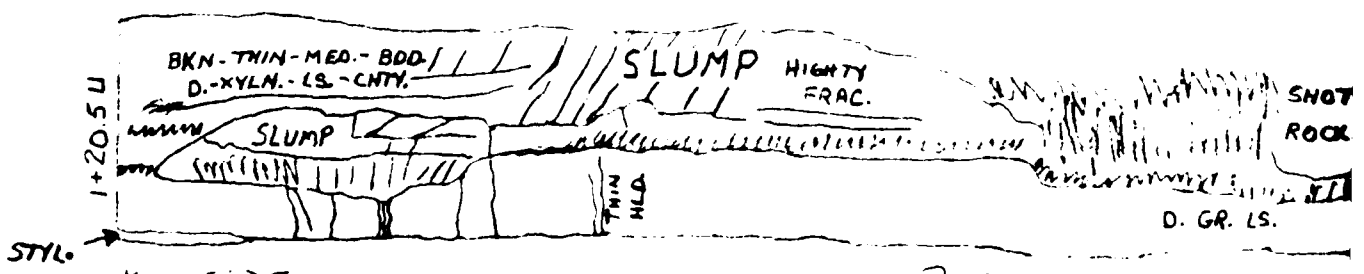
1+20 U 1+10 U 1+00 U 0+90 U 0+80 U 0+70 U 0+60 U

280

270

260

250



Ky SIDE PIER 2.

0+60 U

0+70 U

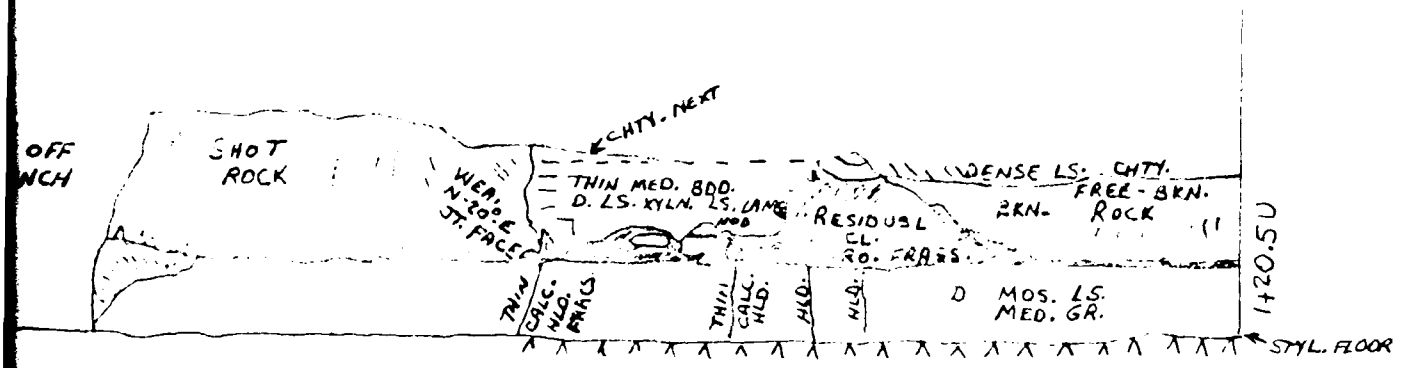
0+80 U

0+90 U

1+00 U

1+00 U

1+20 U



PIER 2

0+70 U

0+60 U

0+50 U

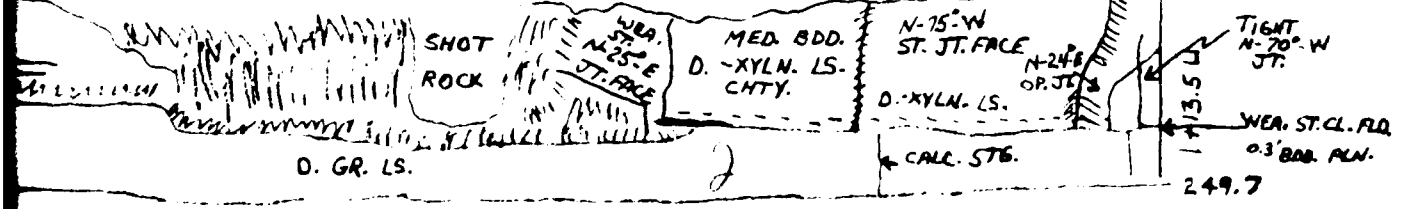
0+40 U

0+30 U

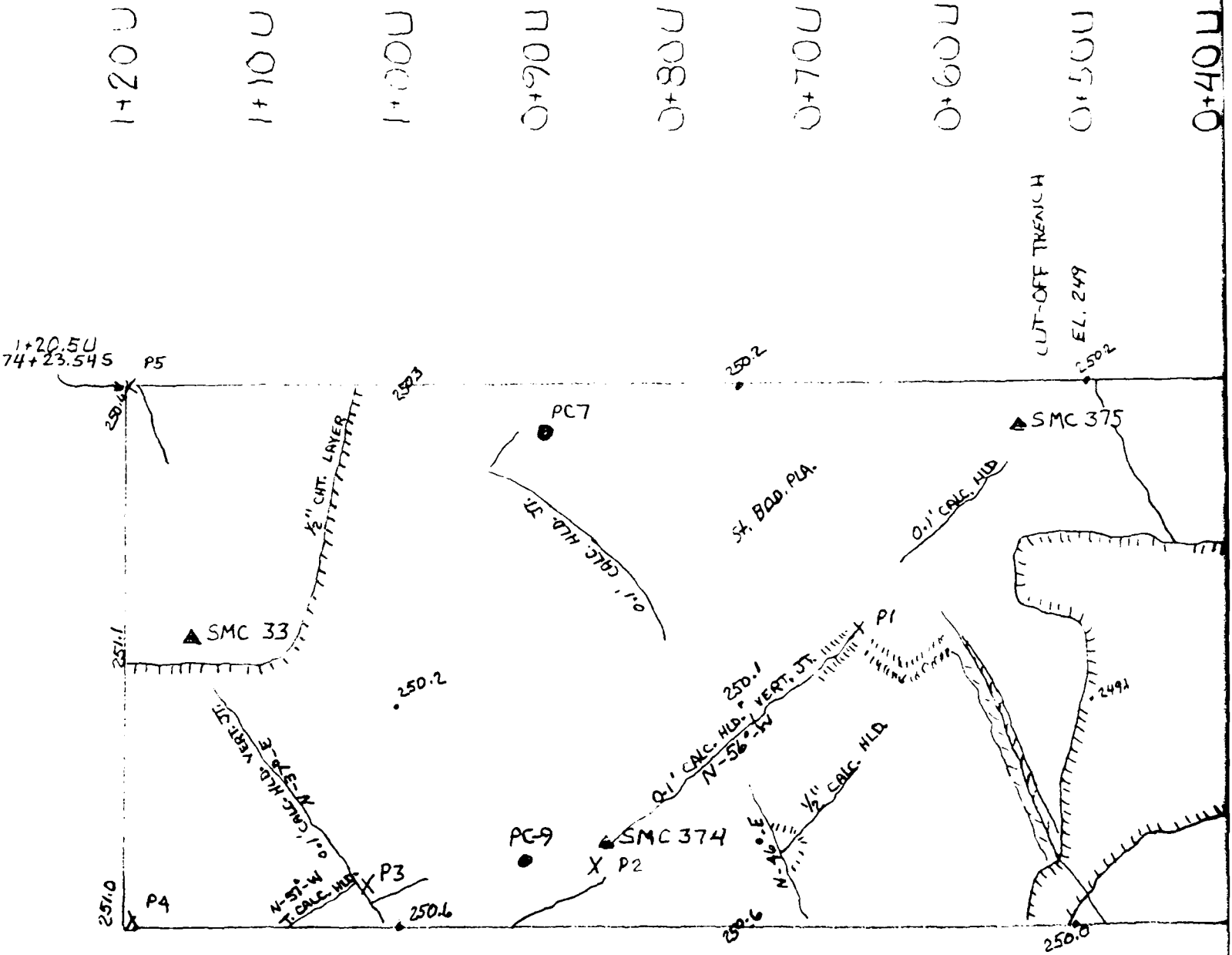
0+20 U

0+10 U

252.7
254.3

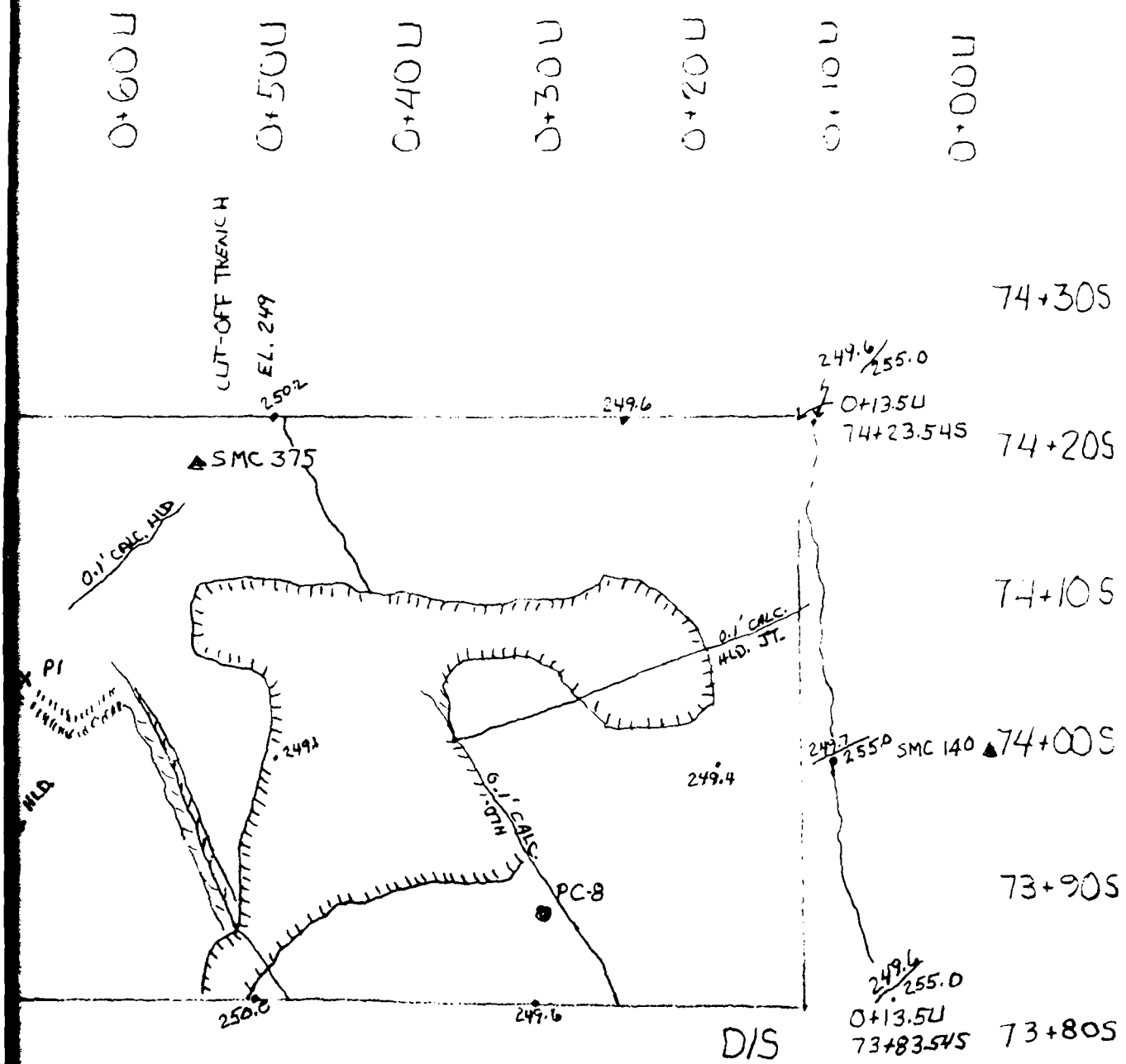


Pier 2

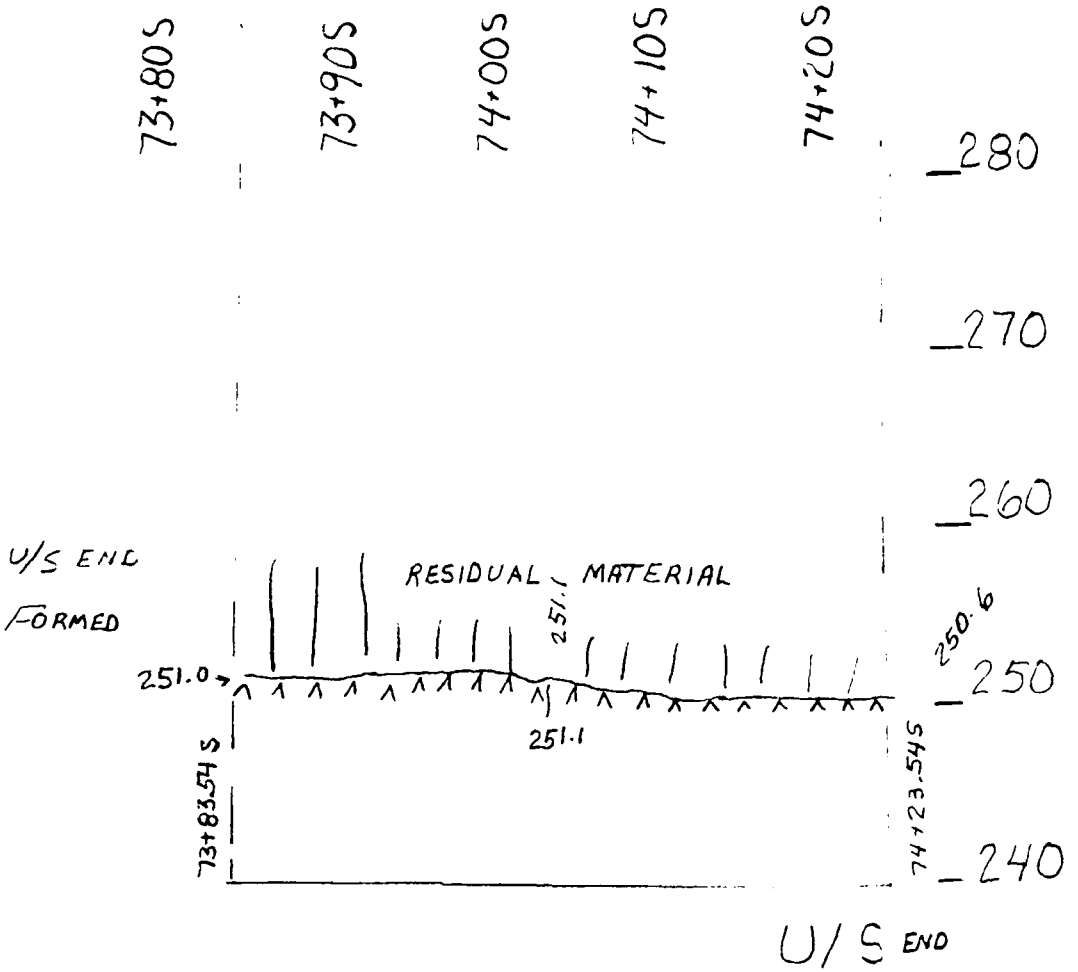

1+20 U
1+10 U
1+00 U
0+90 U
0+80 U
0+70 U
0+60 U
0+50 U
0+40 U
CUT-OFF TRENCH
EL. 249
1+20.5 U
74+23.54 S
P5
250.4
250.3
½" CUT. LAYER
PC7
250.2
SMC 375
St. BOD. PLA.
0.1' CALC. HLD.
SMC 33
251.1
250.2
P1
250.1
0.1' CALC. HLD. VERT. JT.
N-56°-W
½" CALC. HLD.
N-37°-E
1.0' CALC. HLD. VERT. JT.
PC9
SMC 374
P2
P3
N-51°-W
T. CALC. HLD.
251.0
P4
250.6
250.6
250.0
1+20.5 U
73+83.54 S
U/S

PIER 3

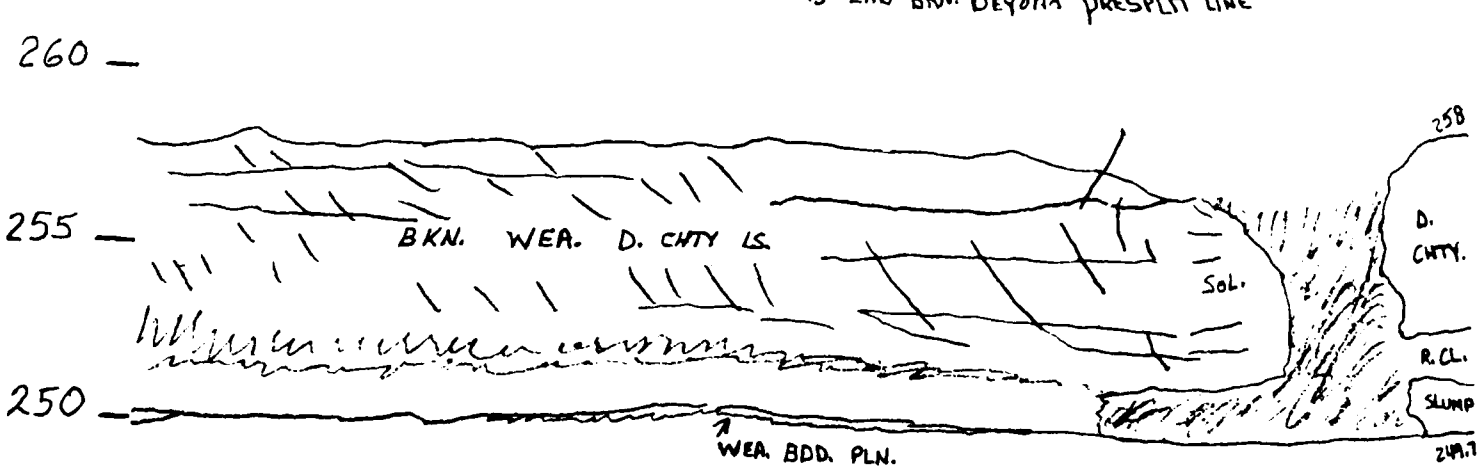
1



FOUNDATION FLOOR



PIER 3



245

Ky.

PIER 3 D/S End

200 ft. ILL.

1+20 S

1+10 S

1+00 S

0+90 S

0+80 S

0+70 S

0+60 S

0+50

300

290

280

270

260

250

240

250.7

1+20.54

FORM WORK TO STA. BDD. PLN.

U/S

KY SIDE

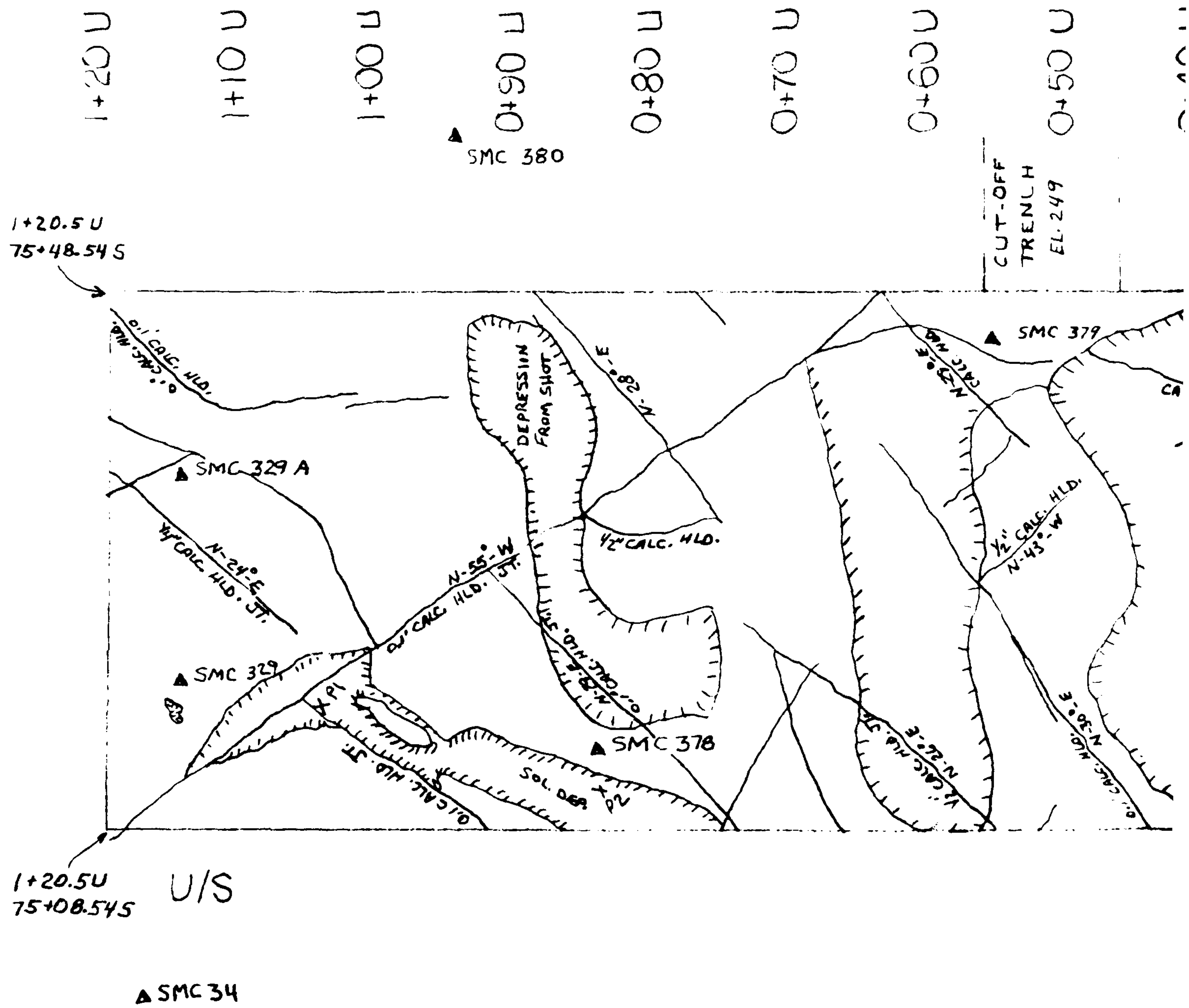
PIER 3

1

0+80S 0+70S 0+60S 0+50S 0+40S 0+30S 0+20S 0+10S

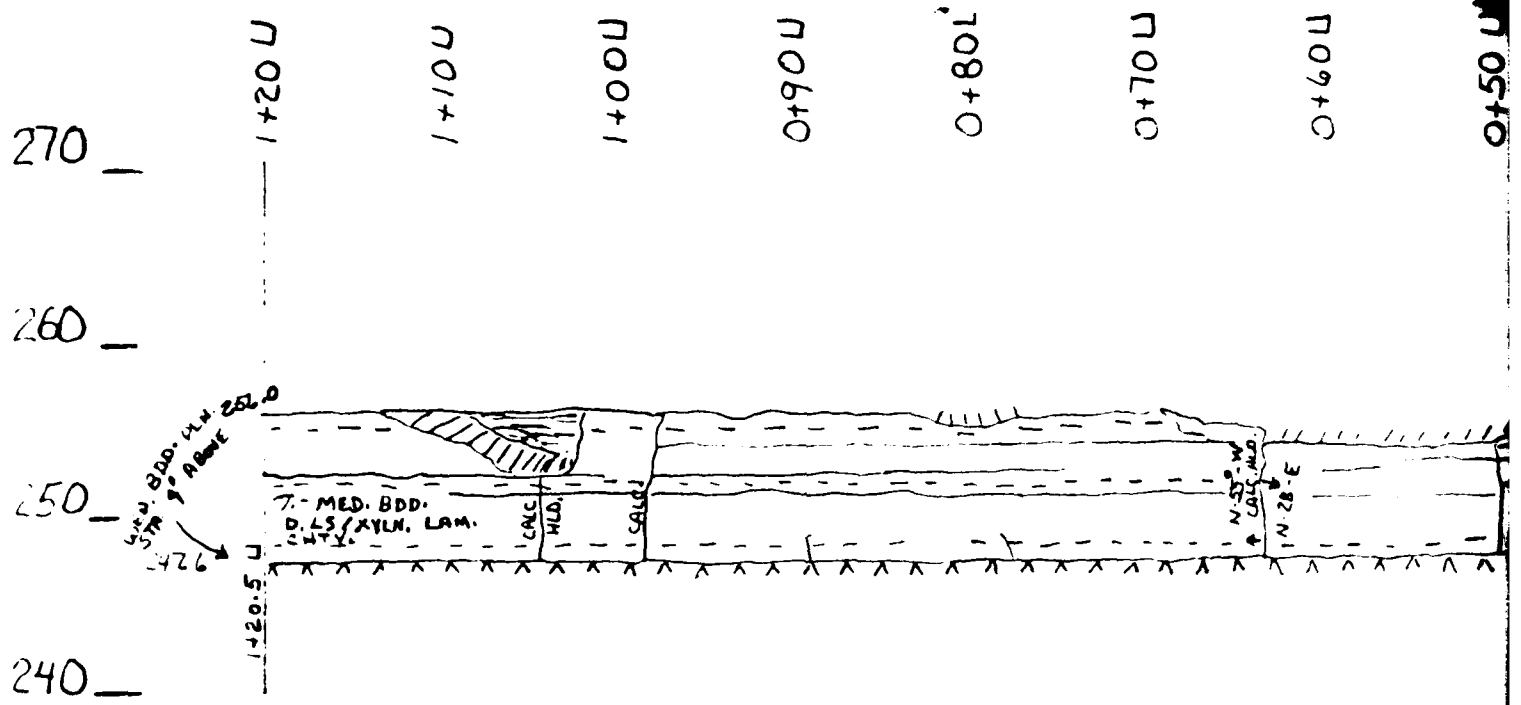
D/S

PIER 3


1+20 U
1+10 U
1+00 U
0+90 U
0+80 U
0+70 U
0+60 U
0+50 U
SMC 380
CUT-OFF
TRENCH
EL. 249
1+20.5 U
75+48.54 S
SMC 379
0.1" CALC. HLD.
DEPRESSION FROM SHOT
N-28°-E
SMC 329 A
1/4" CALC. HLD. JT.
N-24°-E
N-55°-W
0.1" CALC. HLD. JT.
1/2" CALC. HLD.
1/2" CALC. HLD.
N-43°-W
SMC 329
SMC 378
SOL. DEP.
1+20.5U
75+08.54S
U/S
SMC 34

PIER 4

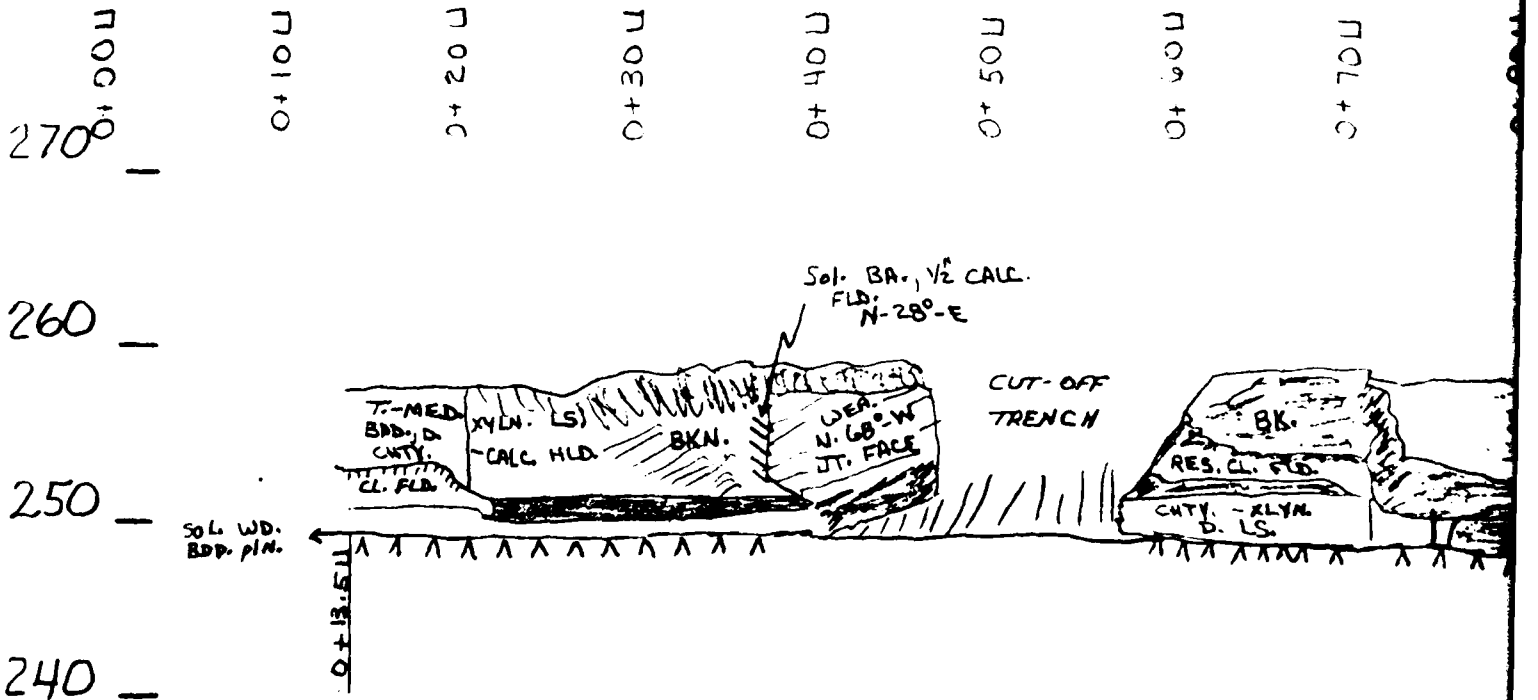
FOUNDATION FLOOR
19 Oct. 76



U/S

KY. SIDE

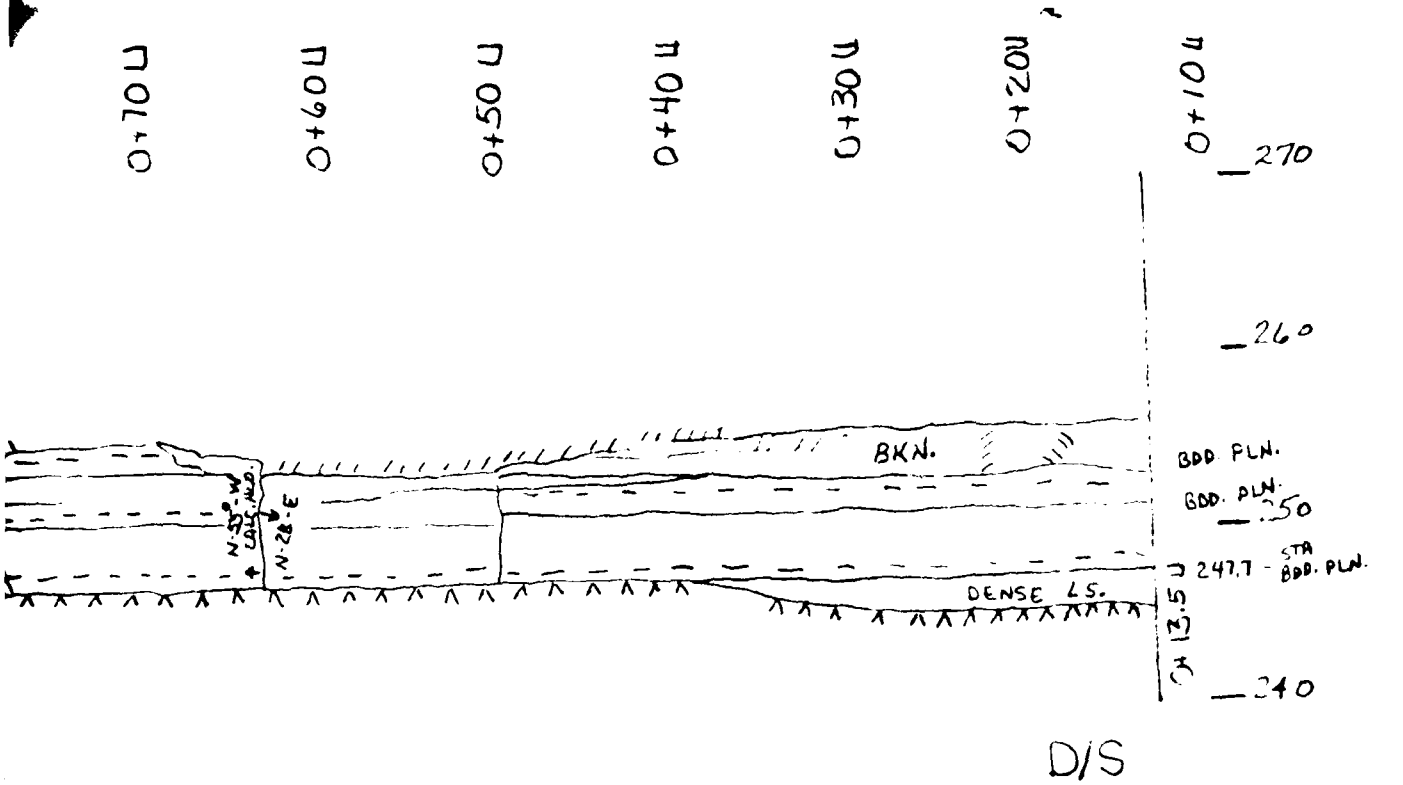
PIER 4



D/S

ILL. SIDE

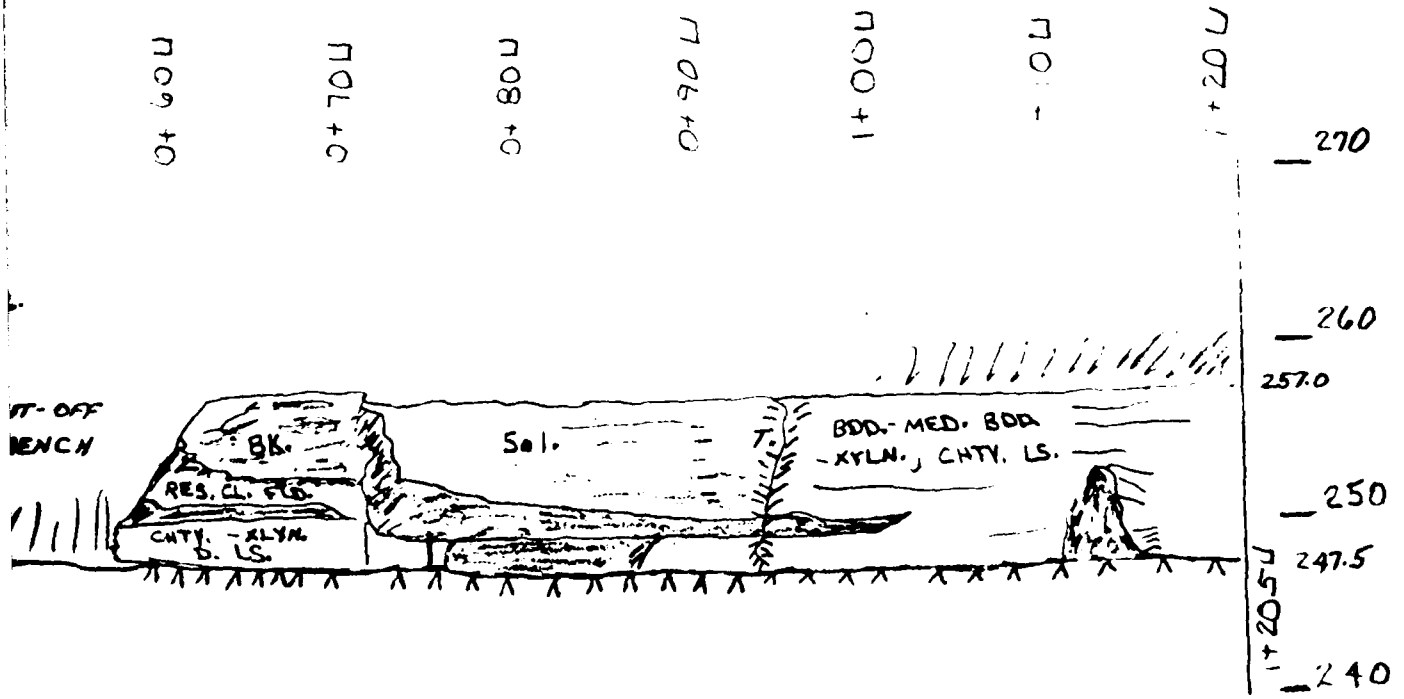
PIER 4



D/S

PIER 4

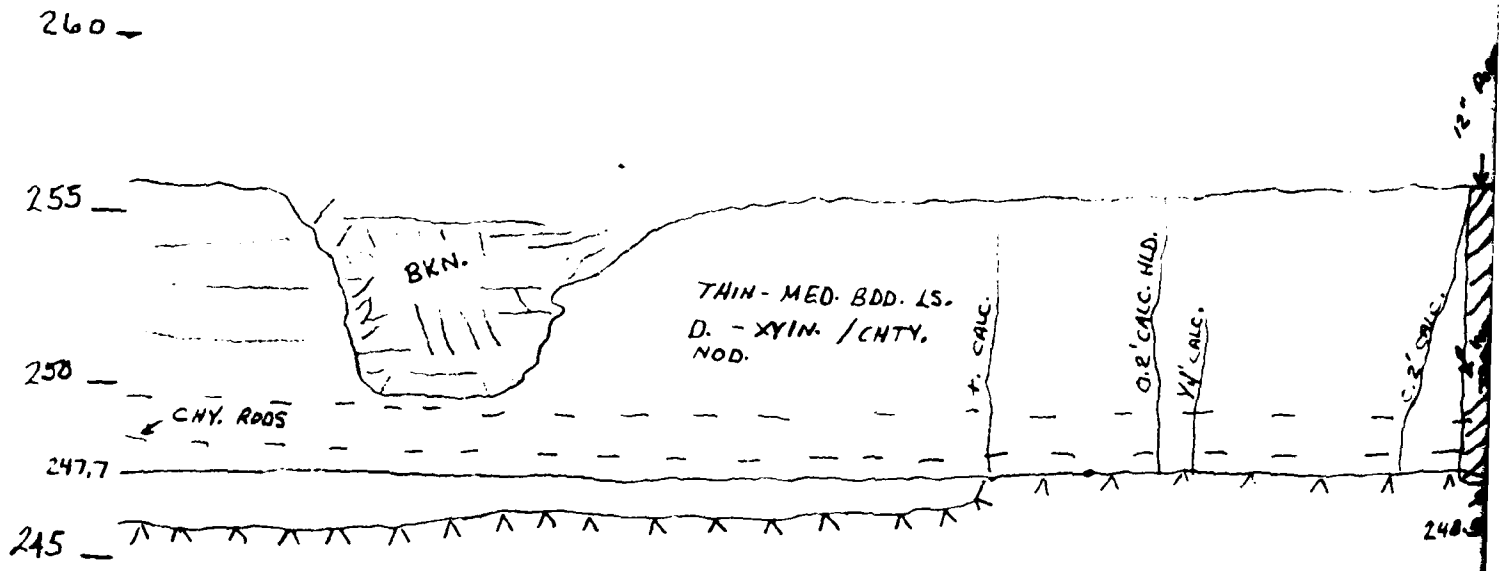
19 Oct. 76



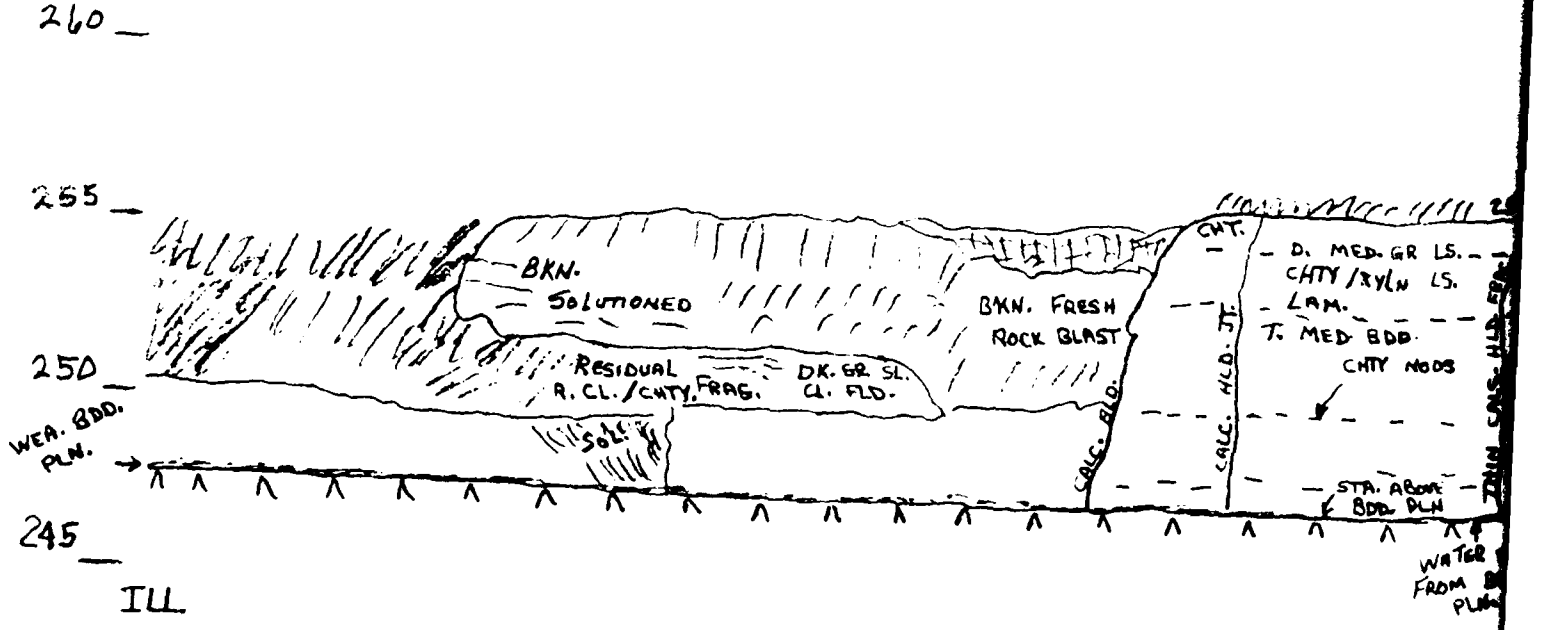
U/S

PIER 4

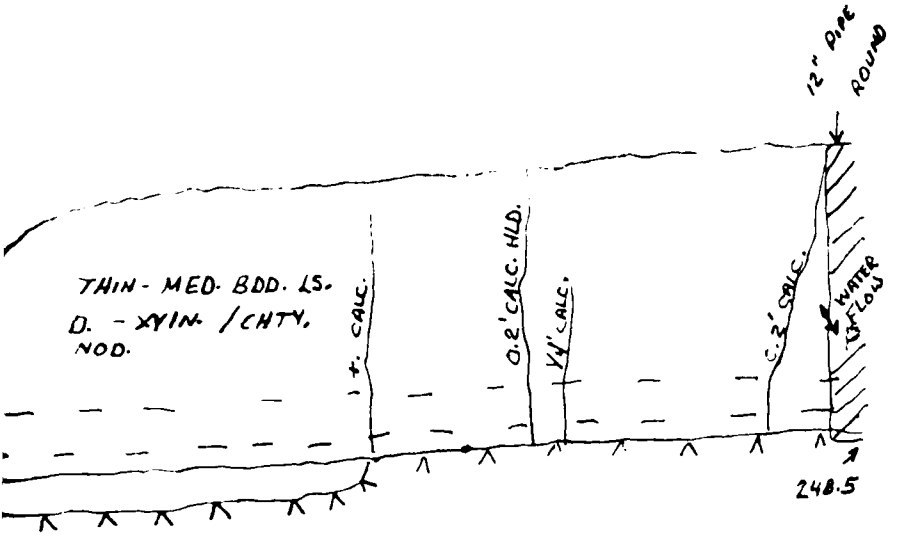
19 OCT 76



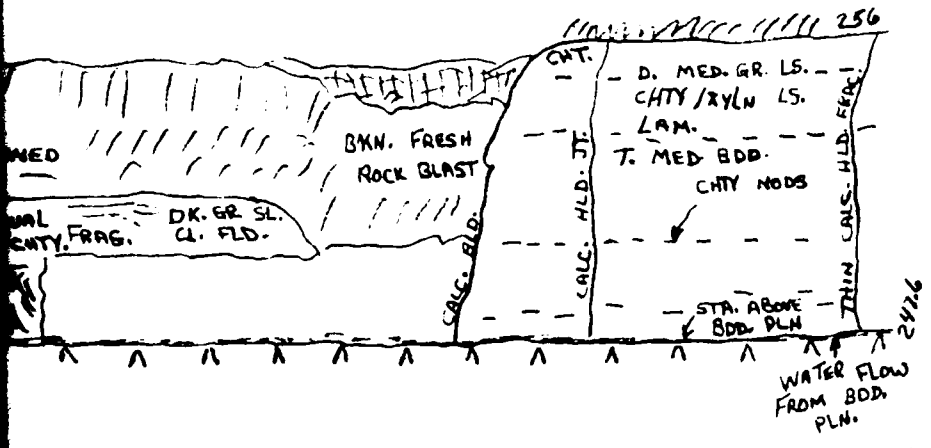
D/S END PIER 4
STA. 0+13.5 U



U/S FACE PIER 4
STA. 1+20.5 U



D/S END PIER 4
0+13.5 U



KY.

U/S FACE PIER 4
STA. 1+20.5 U

1+20 U

1+10 U

1+00 U

0+90 U

0+30 U

0+72 U

0+60 U

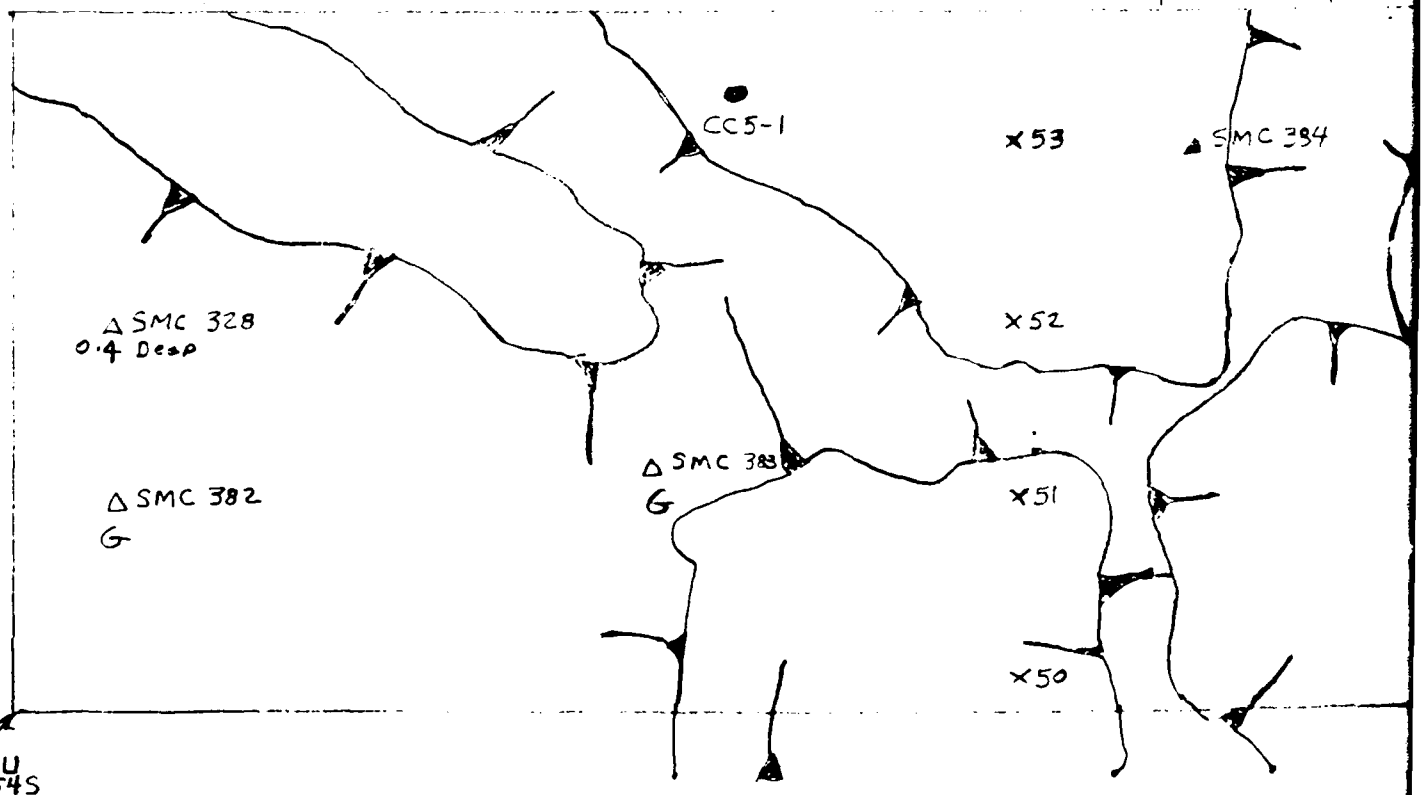
0+50 U

Bottom Rough - Calsite Deposits showing On Joint - Shelly Apperance DS - Rough Rock MARKED Apperance US.

CUT OFF TRENCH

STA. 249

1+20.5U
76+73.54S



1+20.5 U
76+33.54S

PIER 5

1

FOUNDATION FLOOR

U/S END

PIER 5

0+13.5 U
76+33.545

0+13.5 U
76+73.545

EL. 270 —

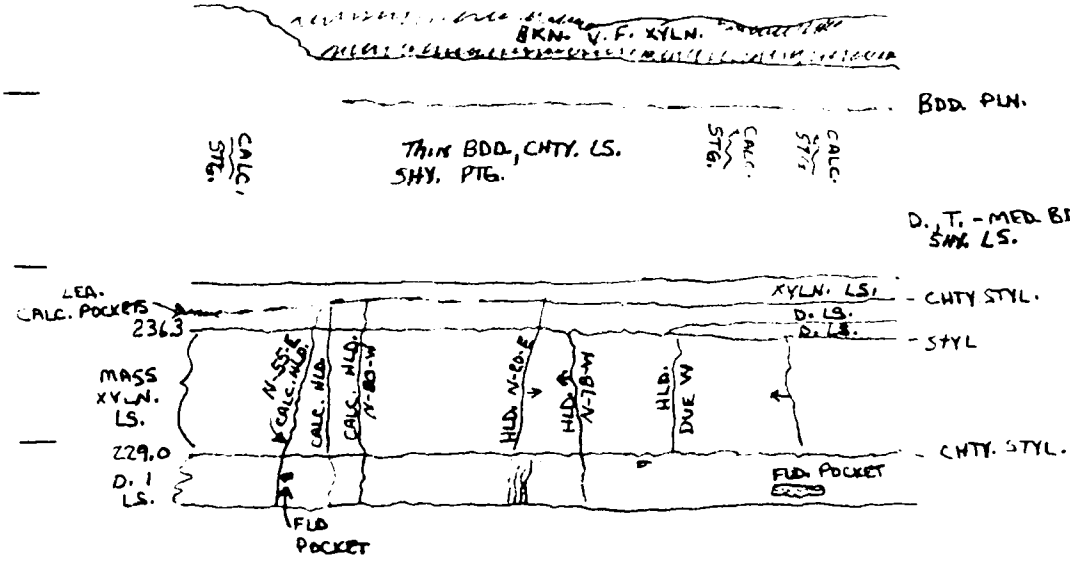
EL. 260 —

EL. 250 —

EL. 240 —

EL. 230 —

EL. 220 —



EL. 270 —

EL 260 —

EL. 250 —

EL. 240 —

EL 230 —

EL 220 —

1

PIER 5

D/S END

PIER 5

0+13.50
76 ↓ 73.54

0+13.50
76 ↓ 33.54

EL. 270 —

EL 260 —

EL. 250 —

BDD. PLN.

D. T. - MED. BDD. SHK LS.

EL. 240 —

- CHTY STYL.

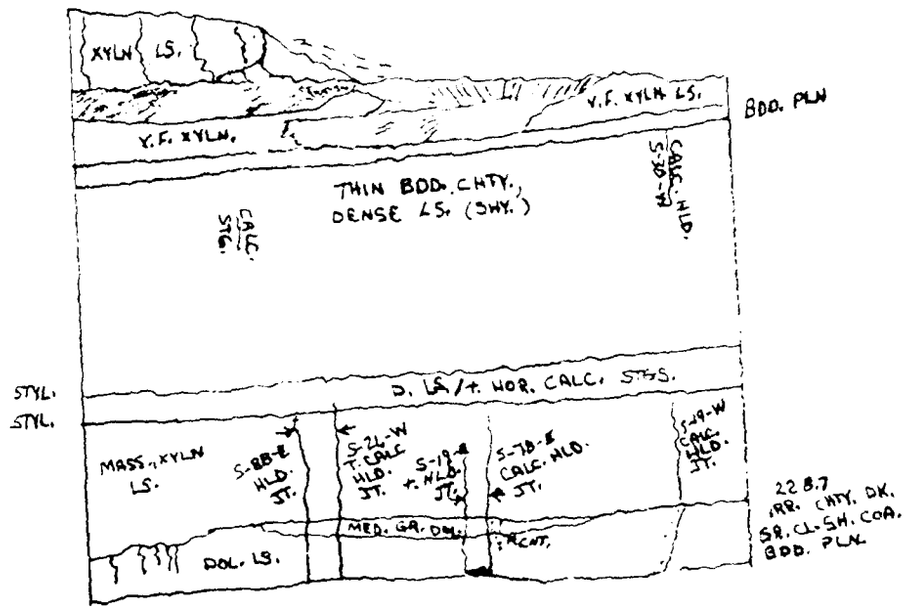
- STYL

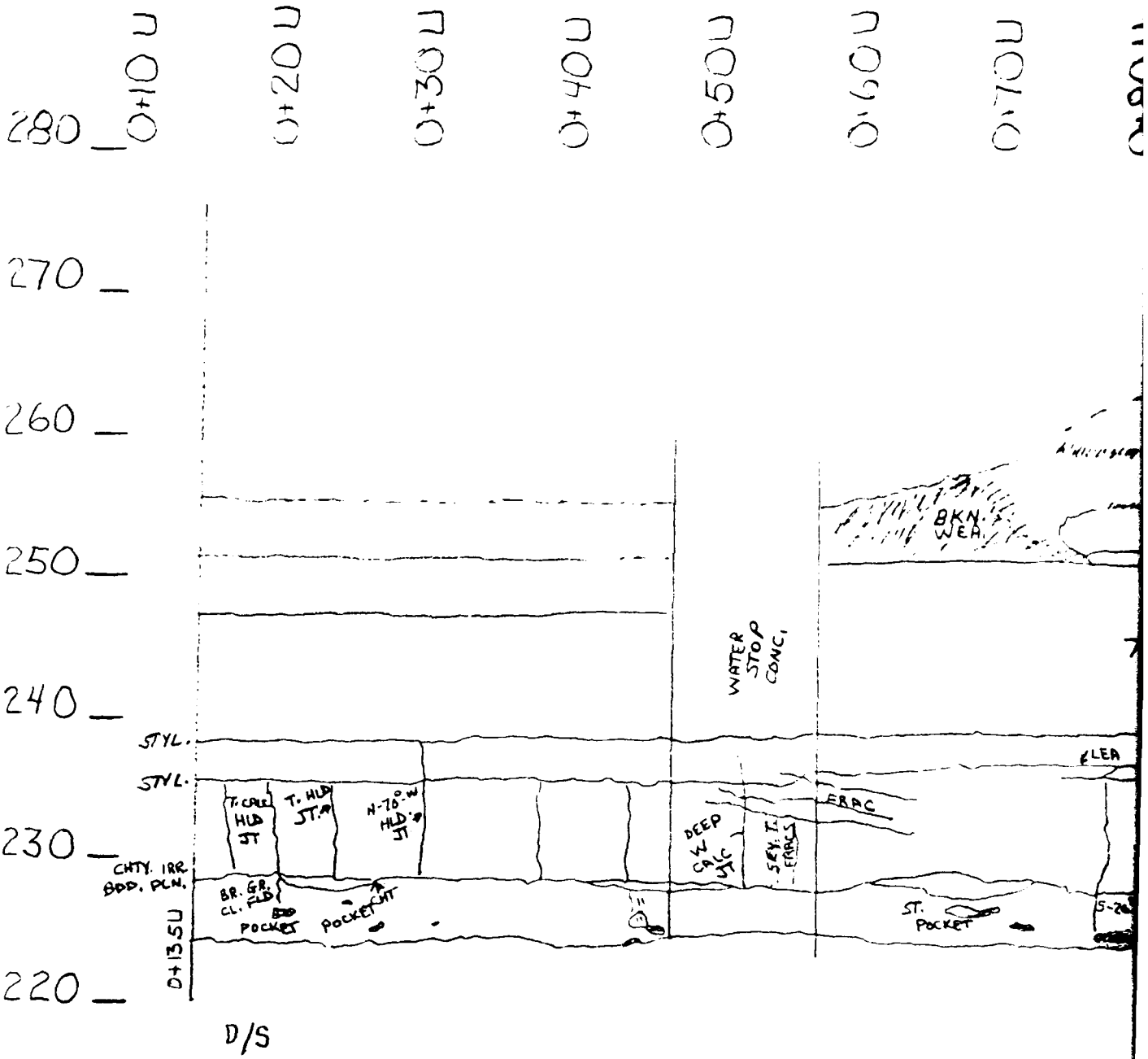
EL. 230 —

- CHTY. STYL.

-

EL 220 —





ILL. SIDE

PIER 5

1

0.60U

0.70U

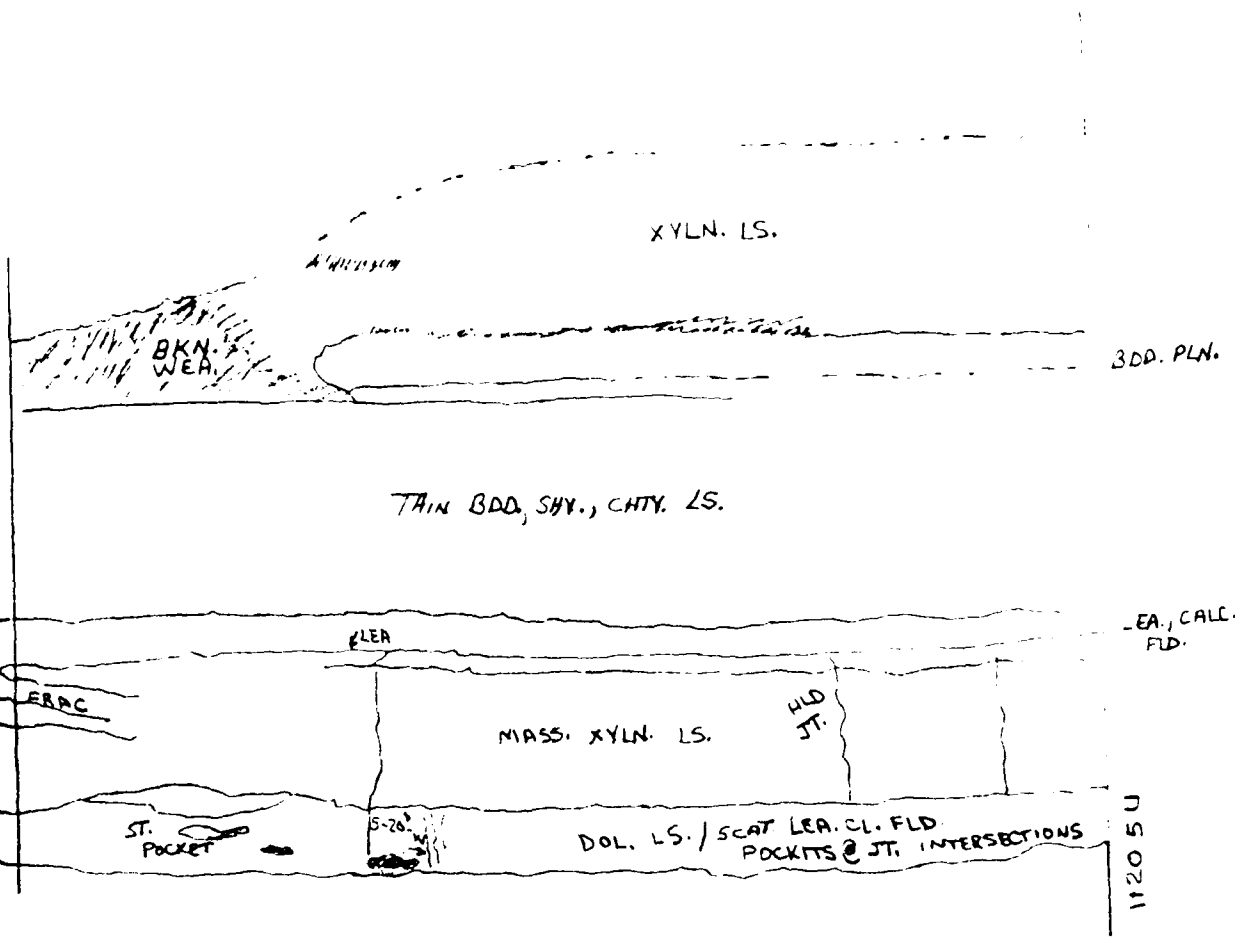
0.80U

0.90U

1.00U

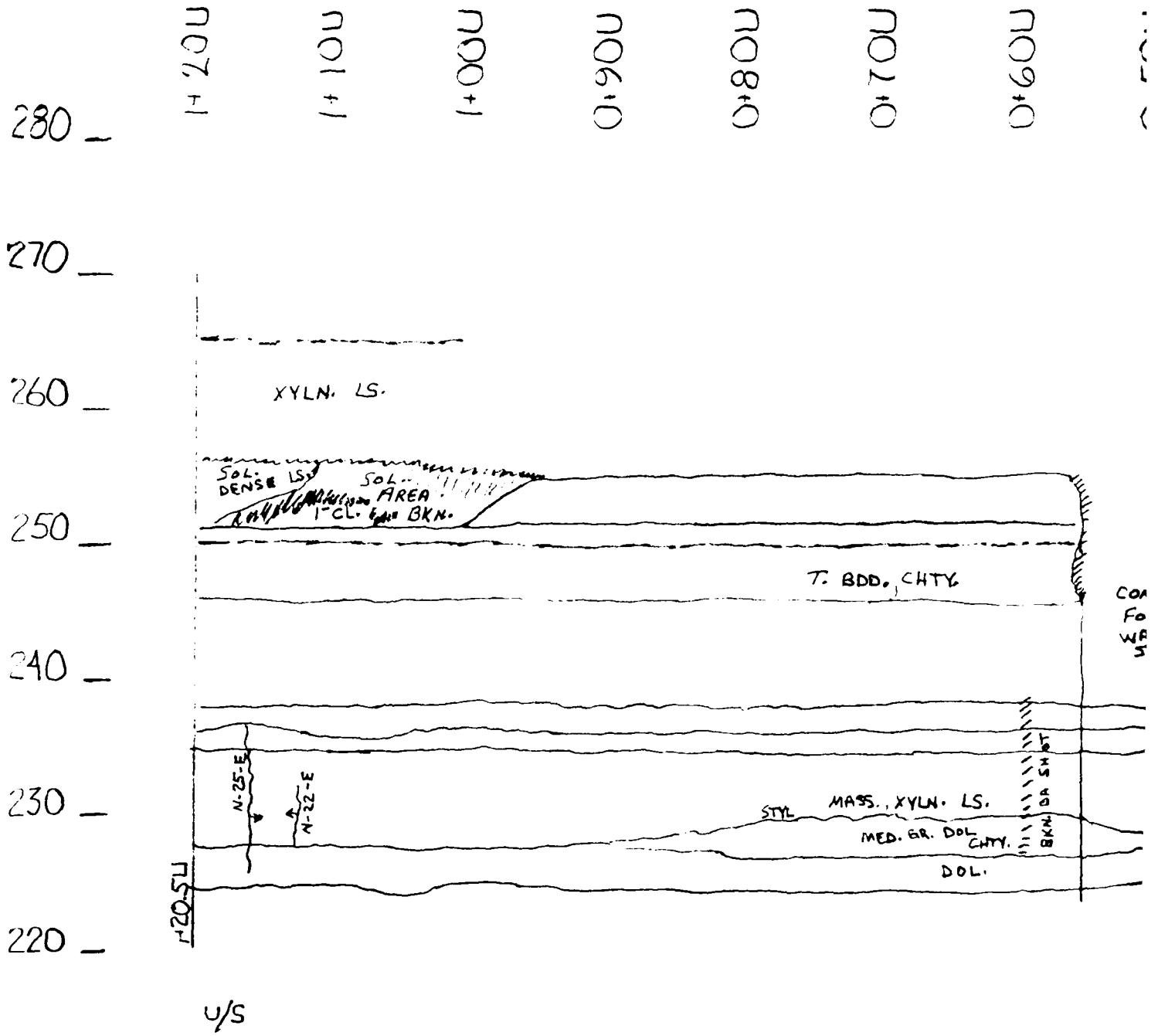
1.10U

1.20U



U/S

PIER 5



U/S

KY. SIDE

PIER 5

1

0+80 U

0+70 U

0+60 U

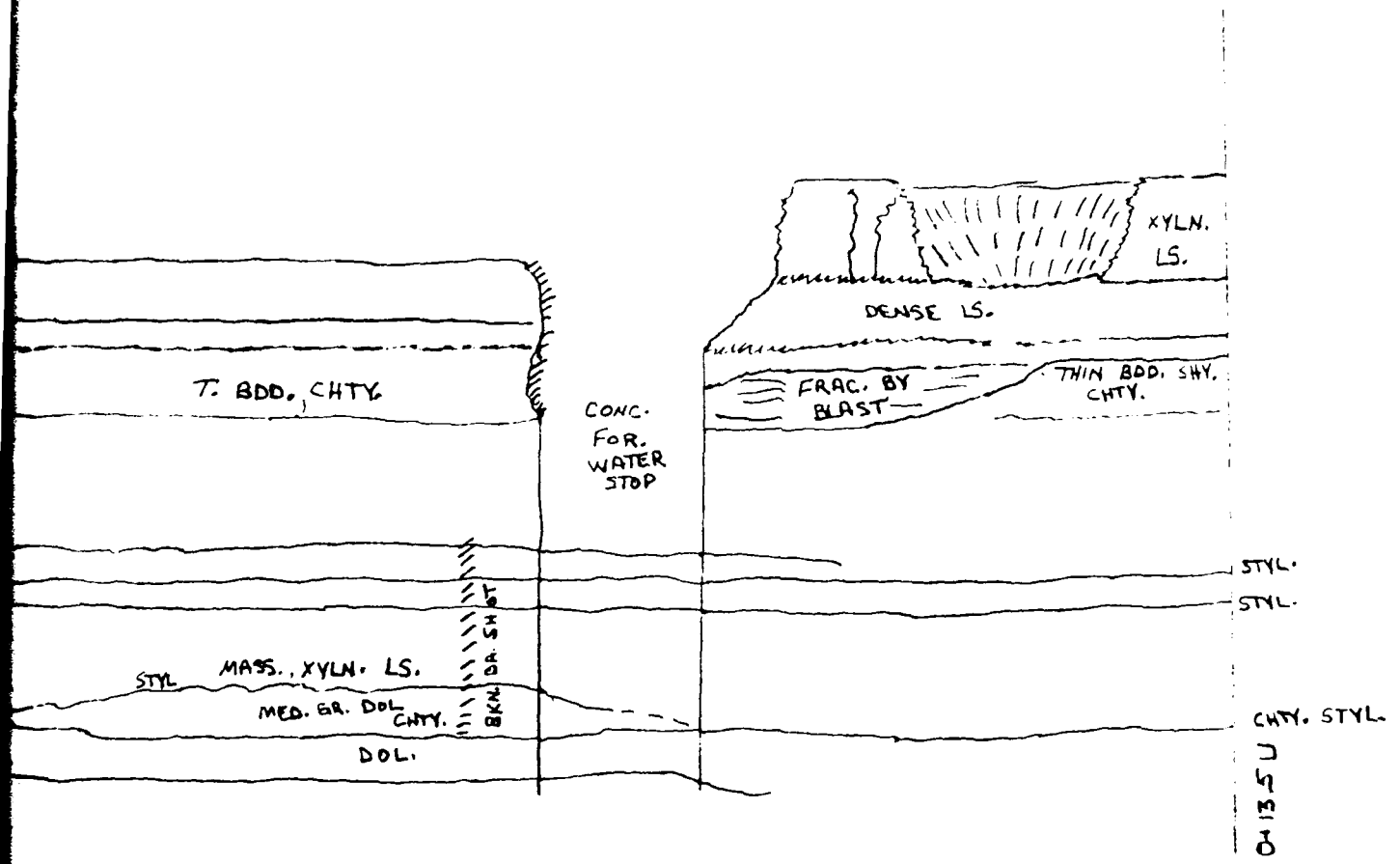
0+50 U

0+40 U

0+30 U

0+20 U

0+10 U



D/S

PIER 5

1+20 U

1+10 U

1+00 U

0+90 U

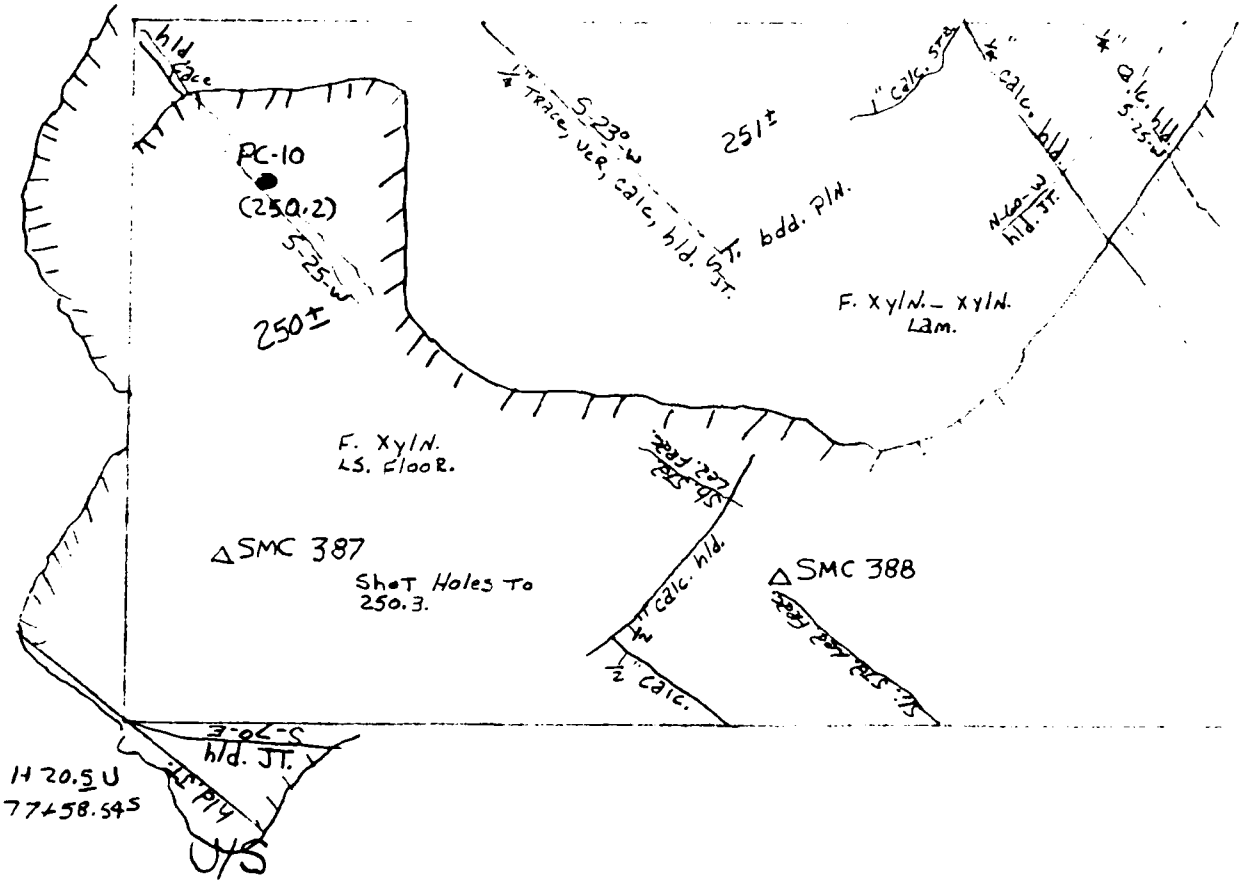
0+80 U

0+70 U

0+40 U

77+98.545

△SMC 244

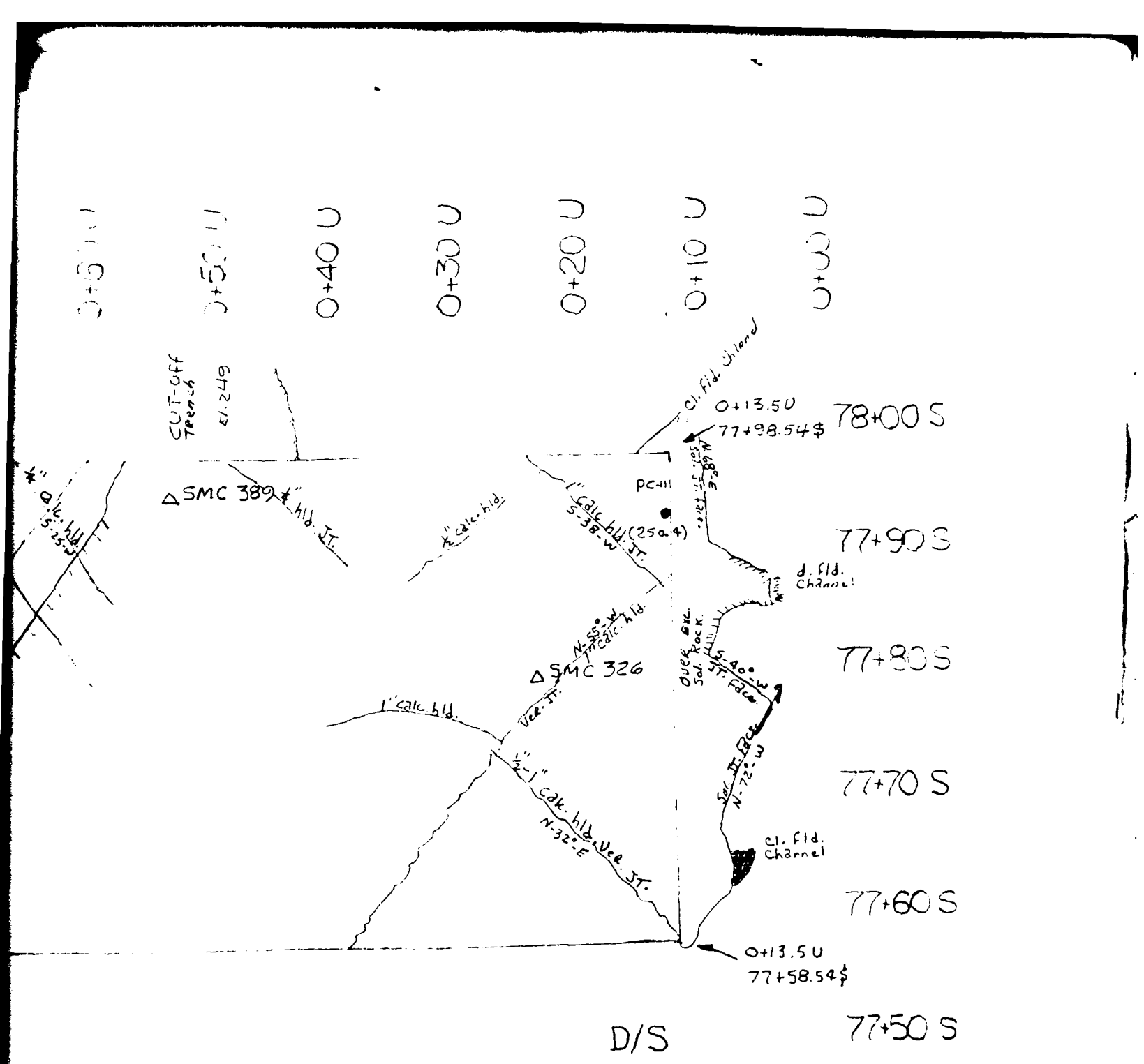


H 20.5 U

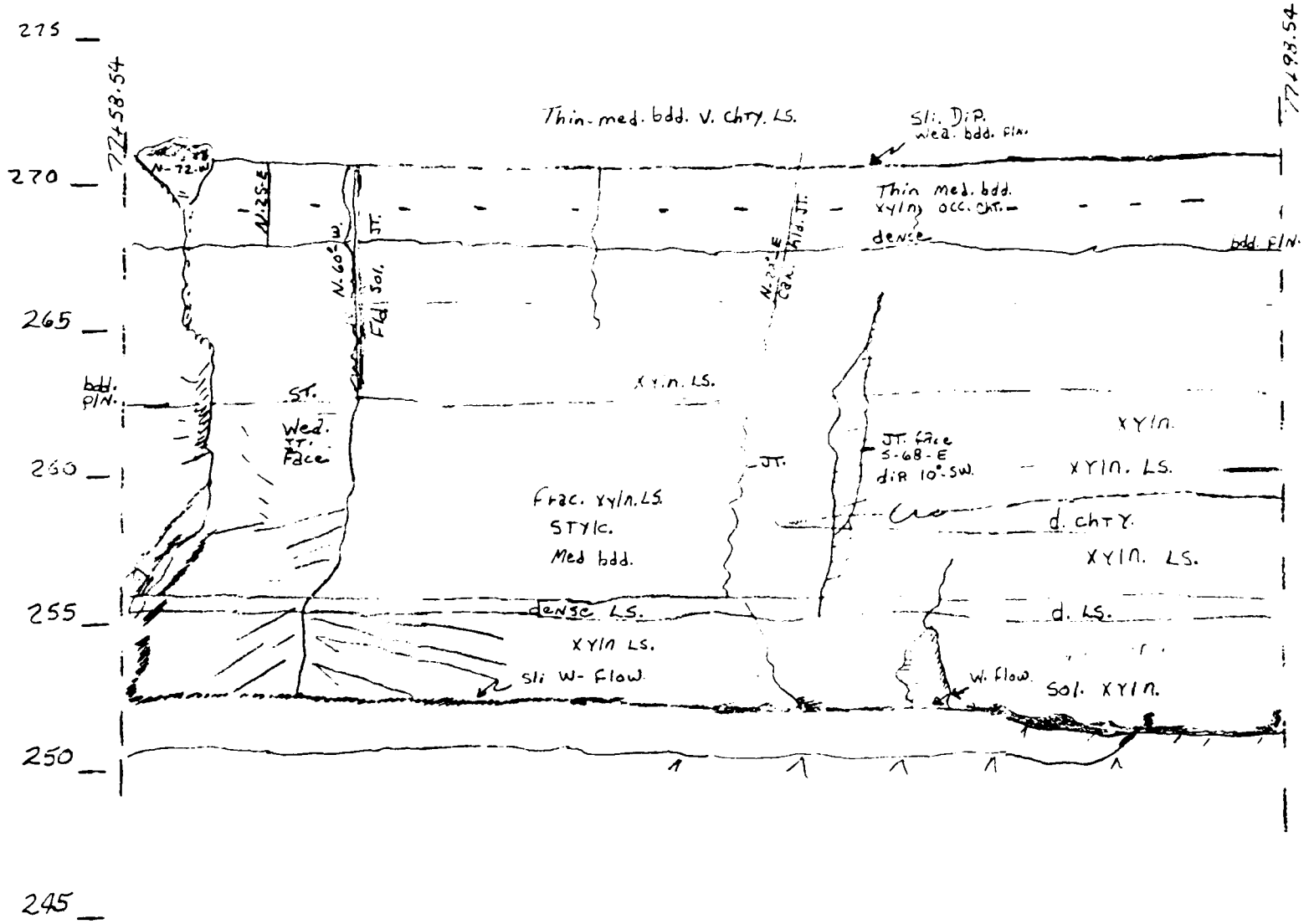
77+58.545

PIER 6

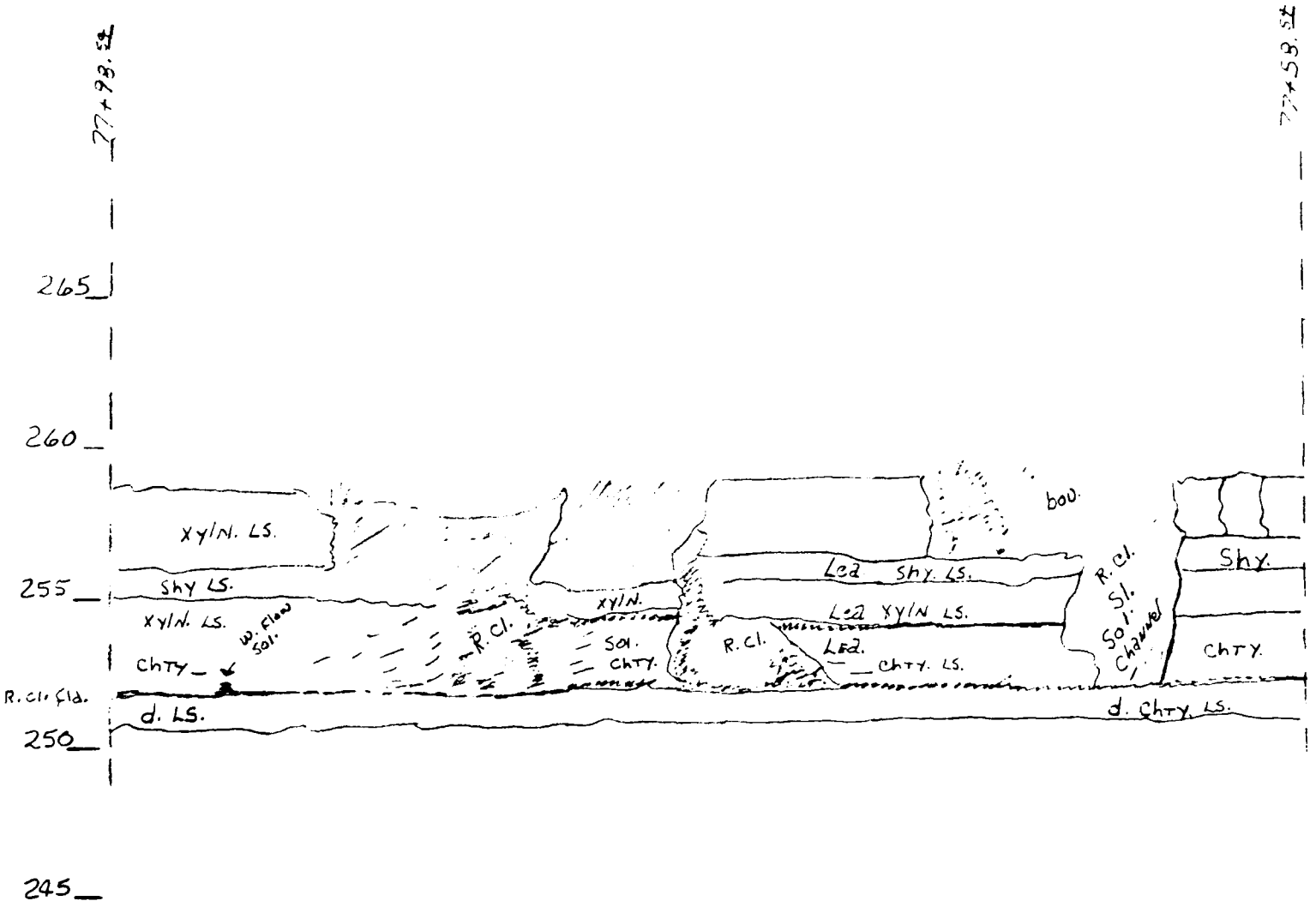
1



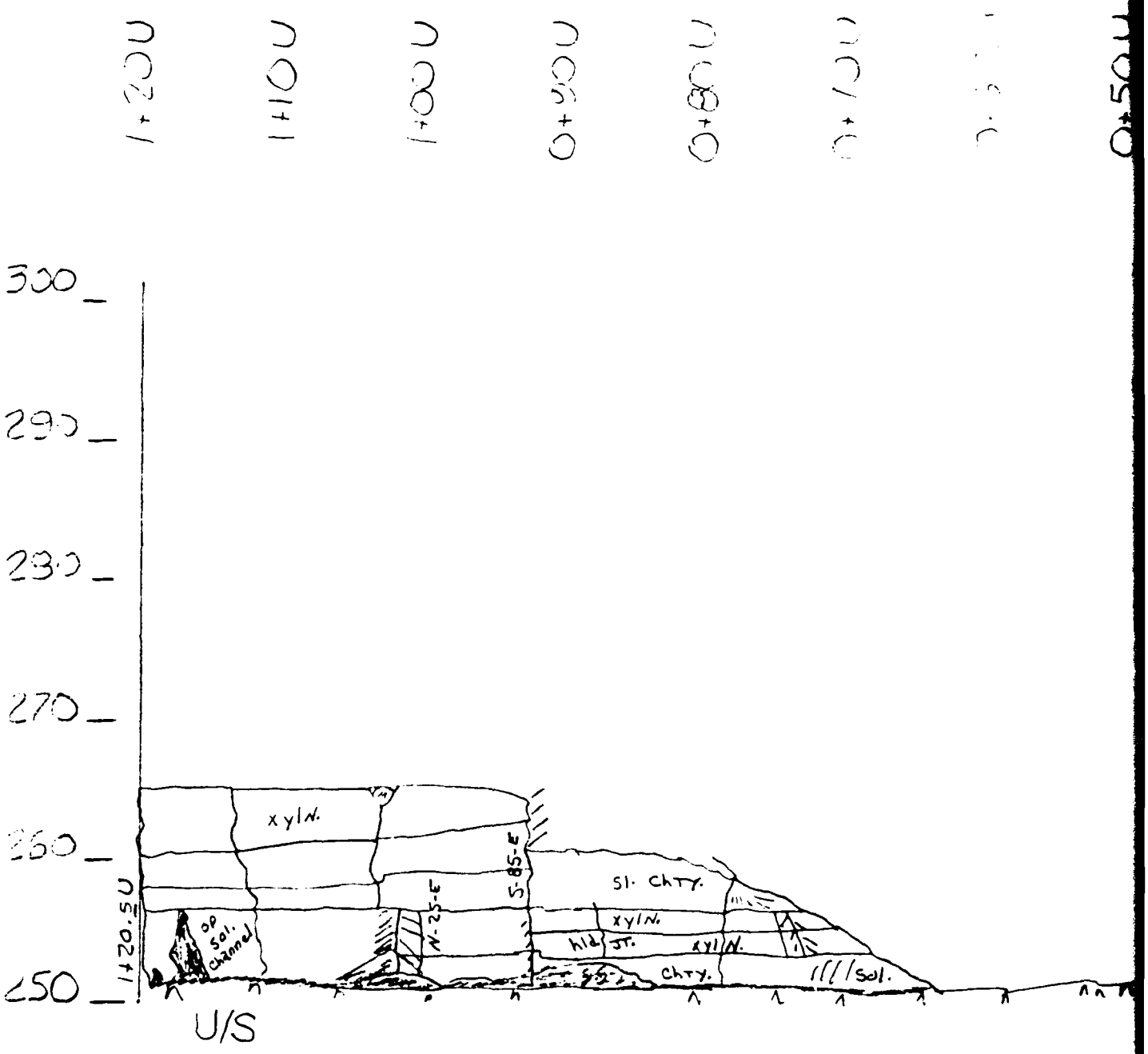
FOUNDATION FLOOR



U/S FACE Pier 6



D/S FACE PIER 6



KY SIDE

PIER 6

1

0+80 U

0+70 U

0+60 U

0+50 U

0+40 U

0+30 U

0+20 U

0+10 U

PIER 6

ILL. SIDE

PIER 6

1

0+50 U

0+60 U

0+70 U

0+80 U

0+90 U

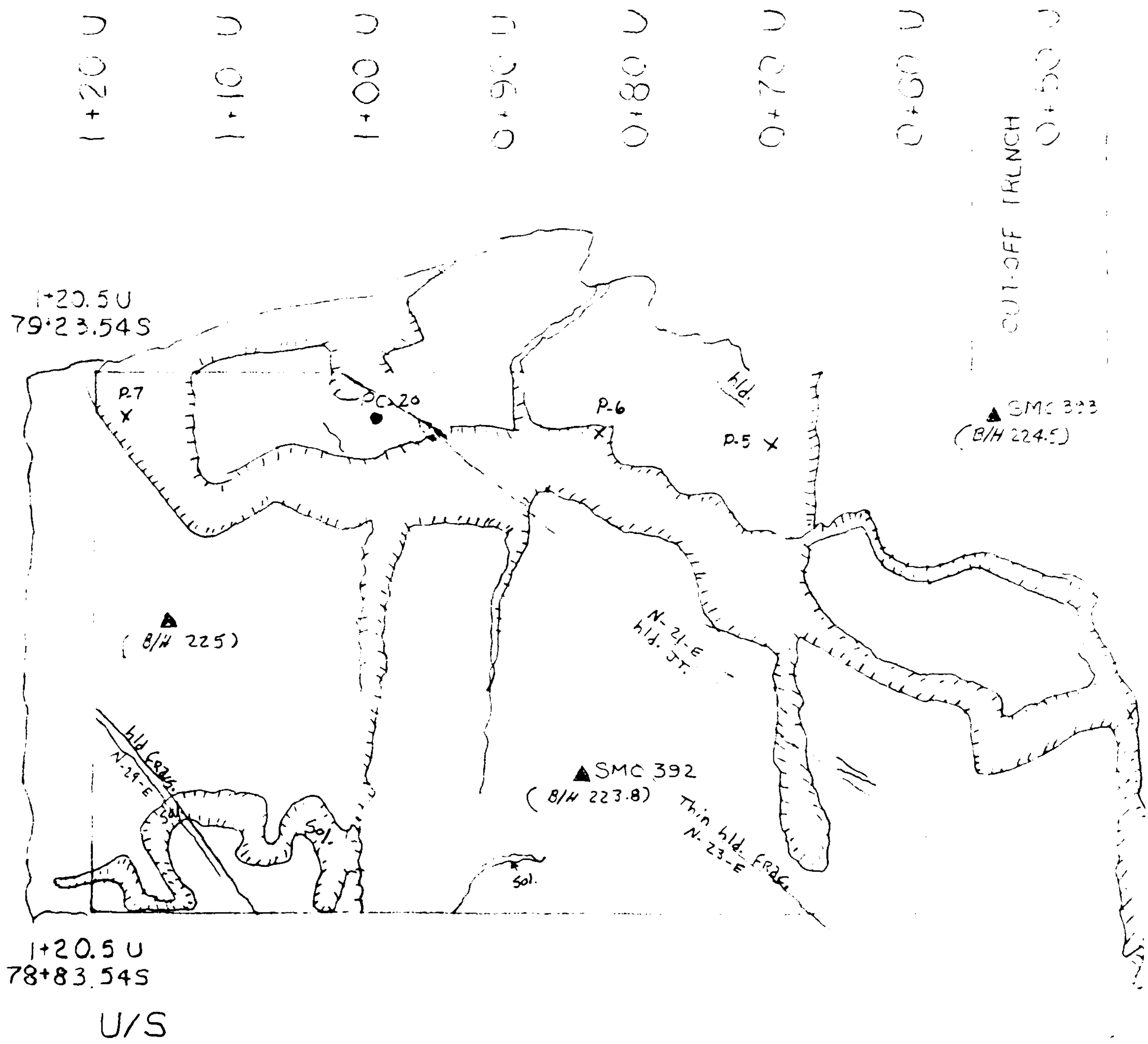
1+00 U

1+10 U

1+20 U

U/S

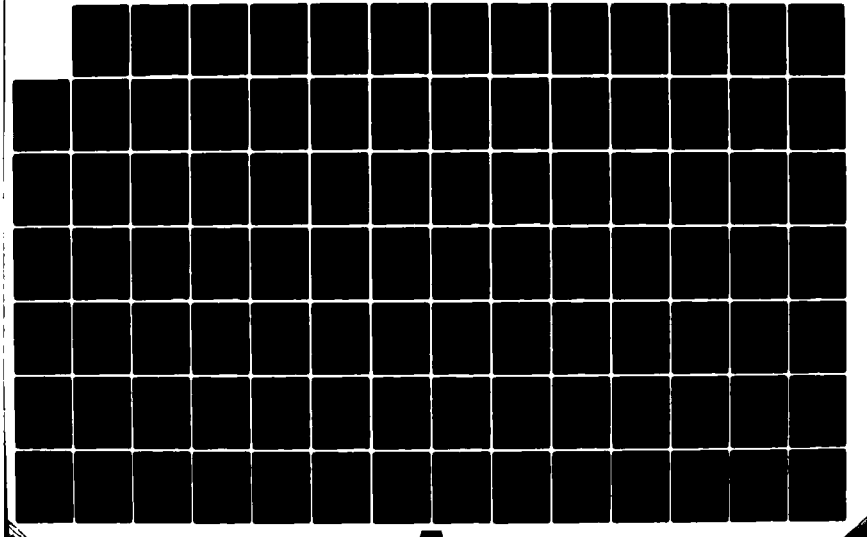
PIER 6

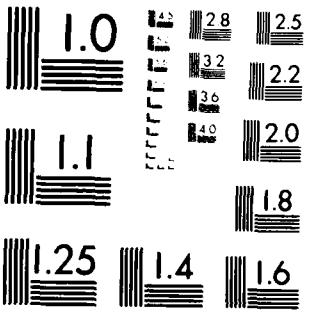

1+20 U
1+10 U
1+00 U
0+90 U
0+80 U
0+70 U
0+60 U
0+50 U
CUT-OFF TRENCH
1+20.5 U
79+23.54S
P-7
PC-20
P-6
P-5
hld.
SMC 393
(B/H 224.5)
(B/H 225)
N-21-E
hld. JT.
SMC 392
(B/H 223.8)
Thin hld. FRAG.
N-23-E
hld FRAG.
N-29-E
Sol.
Sol.
Sol.
1+20.5 U
78+83.54S
U/S

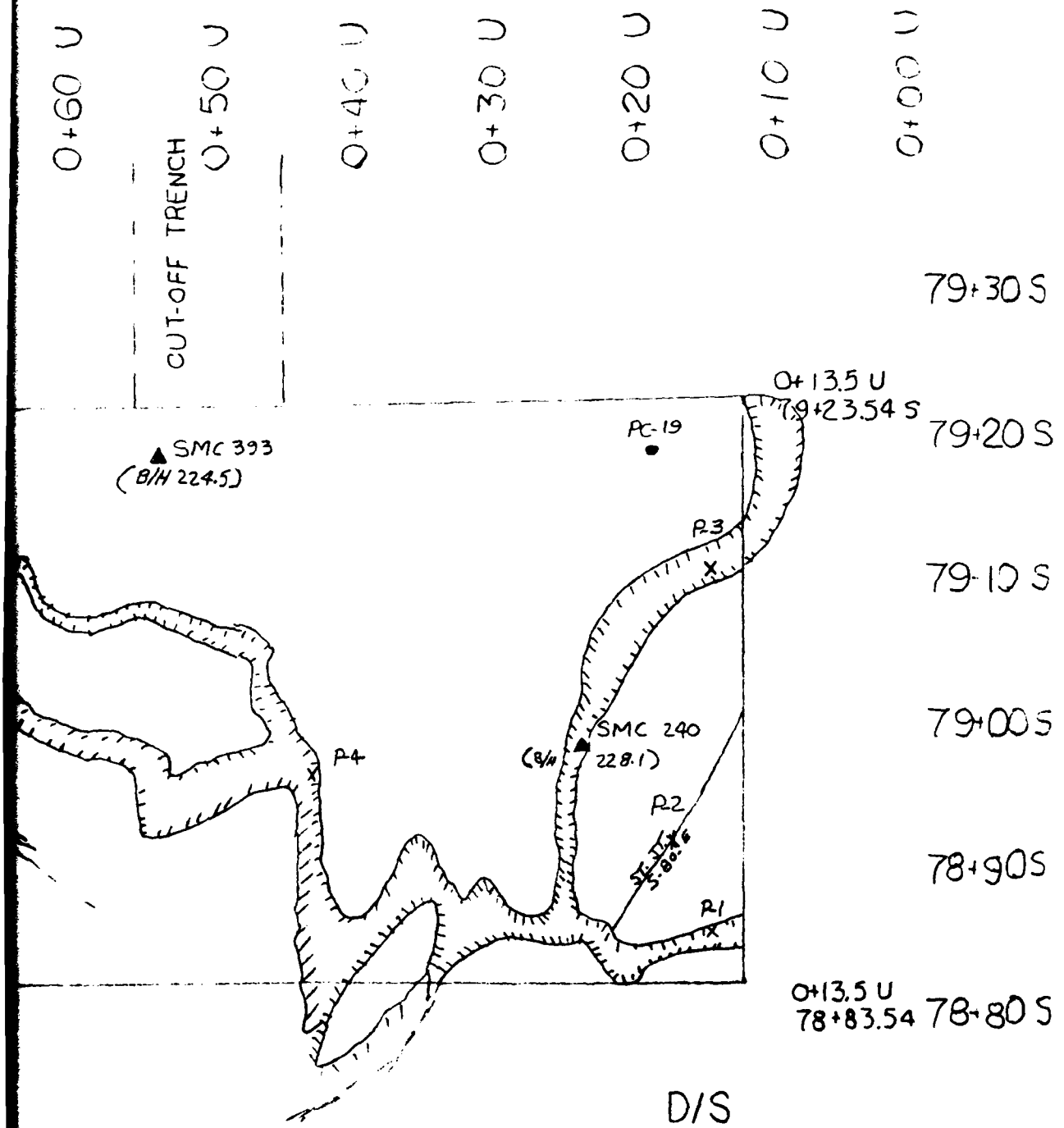
PIER 7

AD-A125 057 SMITHLAND DAM OHIO RIVER FOUNDATION REPORT VOLUME II PHOTOGRAPHS AND FOUNDATION MAPS(U) JONES-TEER SMITHLAND KY R SCHIPP ET AL. FEB 83 DACW62-75-C-0015 2/3

UNCLASSIFIED F/G 13/13 NL





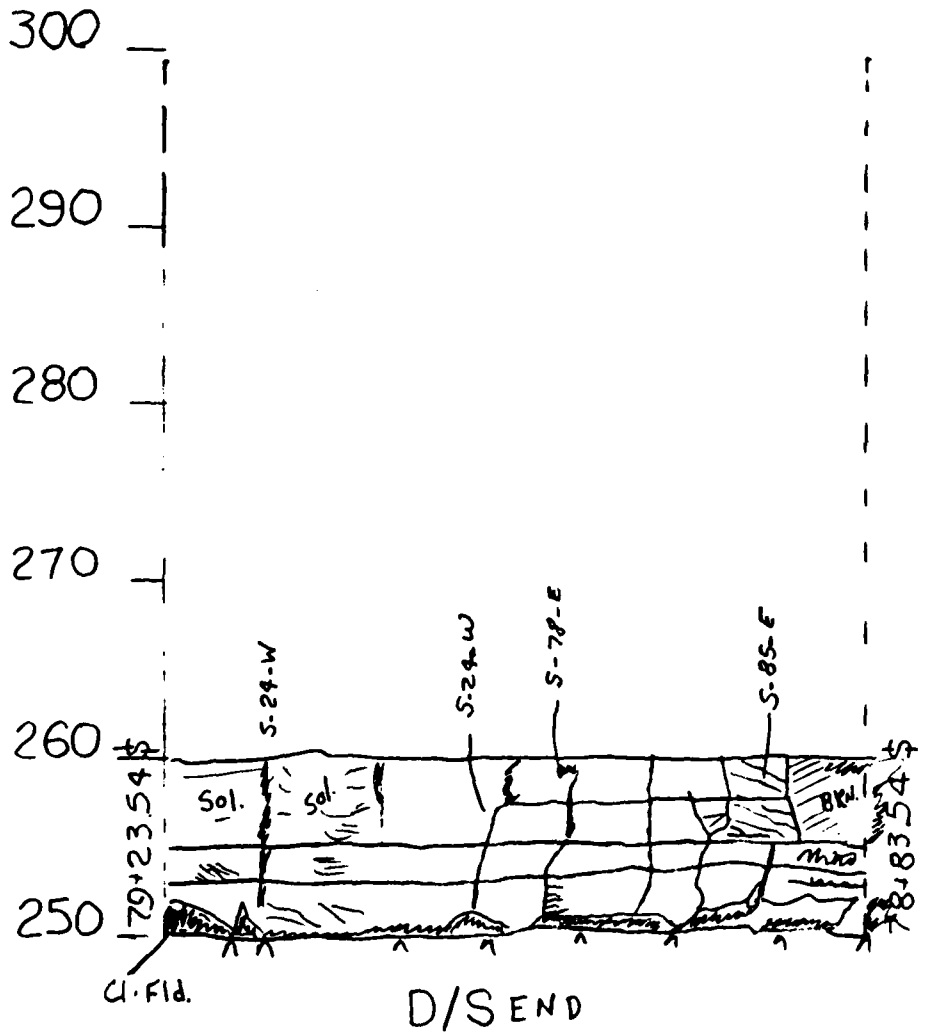


FOUNDATION FLOOR

BY ..... DATE..... SUBJECT ..... SHEET NO ..... OF .....

CHKD. BY ..... DATE ..... JOB NO .....

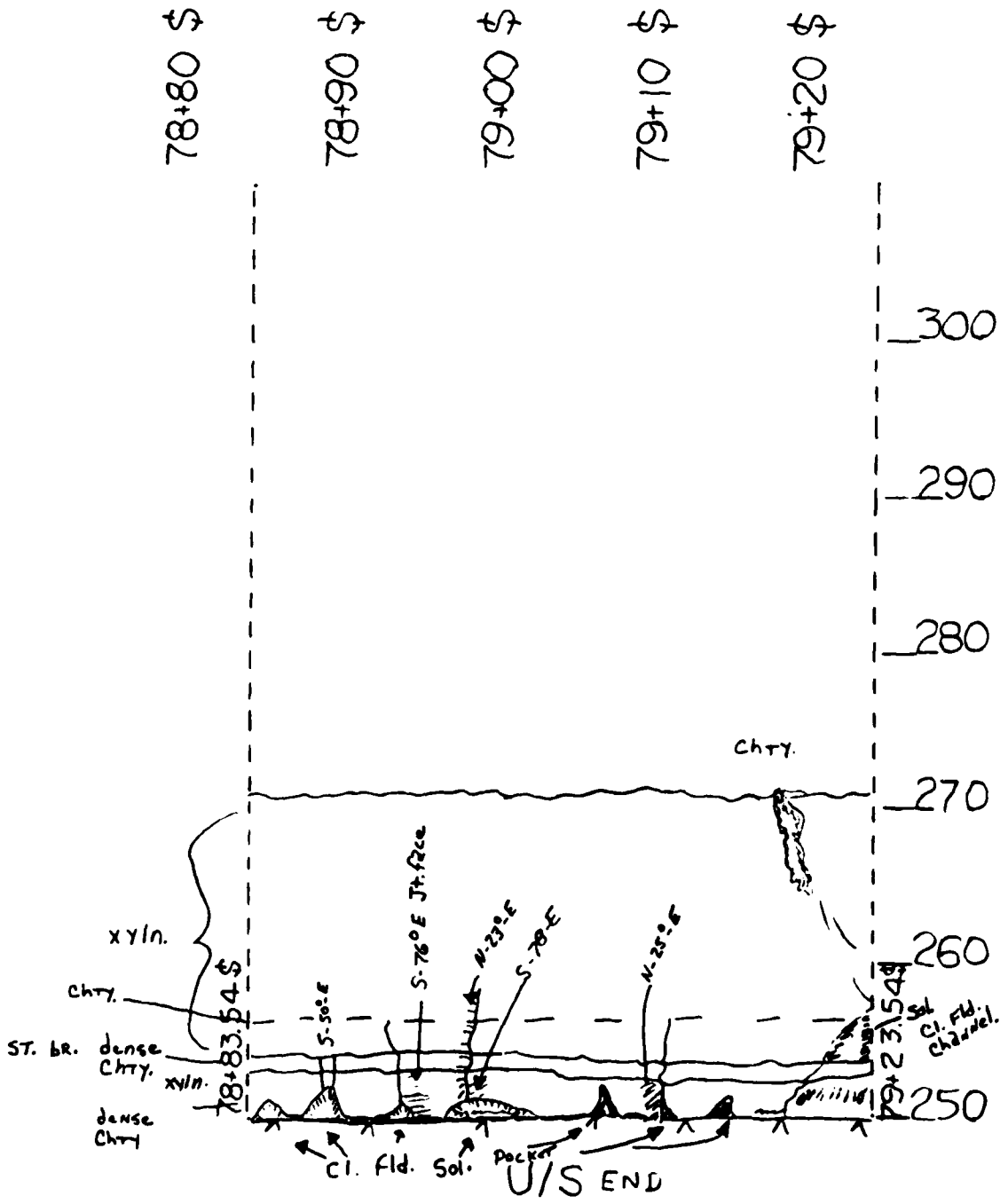
79+20 ℄ 79+10 ℄ 79+00 ℄ 78+90 ℄ 78+80 ℄



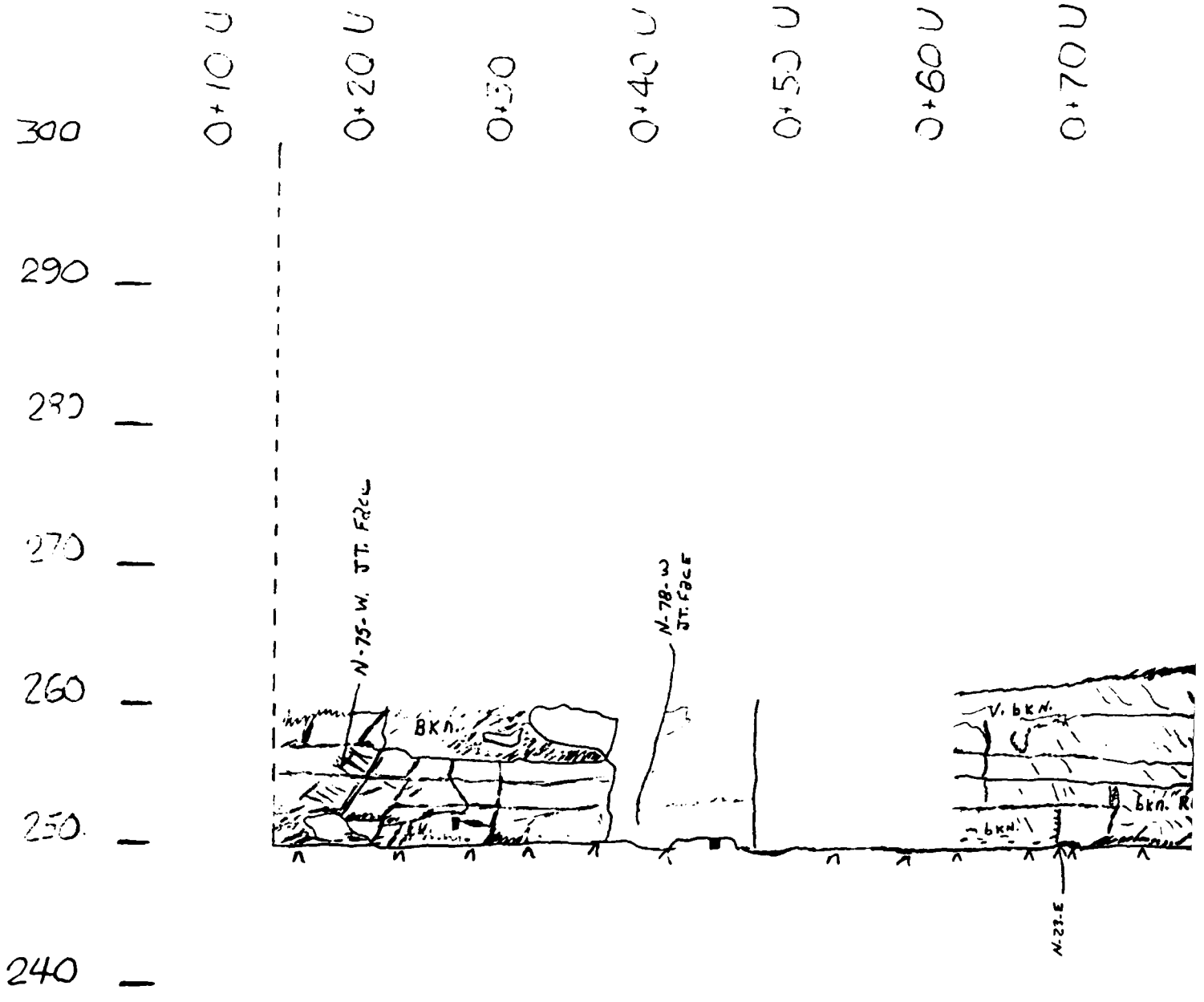
PIER 7

BY ..... DATE ..... SUBJECT ..... SHEET NO. ..... OF .....

CHKD. BY DATE ..... JOB NO. .....



PIER 7



D/S

ILL SIDE

PIER 7

0+50 U

0+60 U

0+70 U

0+80 U

0+90 U

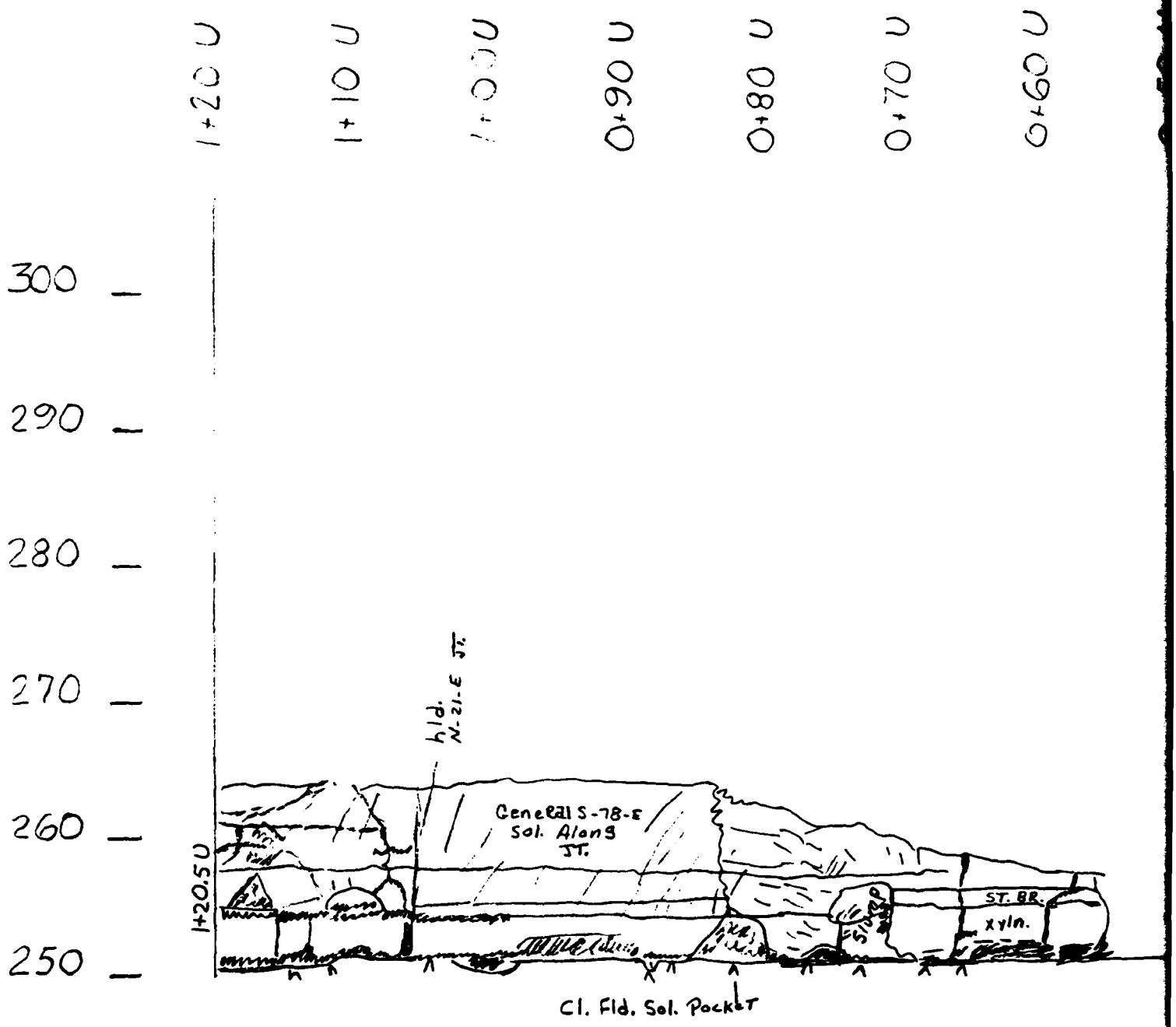
1+00 U

1+10 U

1+20 U

U/S

PIER 7



U/S

KY. SIDE

PIER 7

1

0+80 U

0+70 U

0+60 U

0+50 U

0+40 U

0+30 U

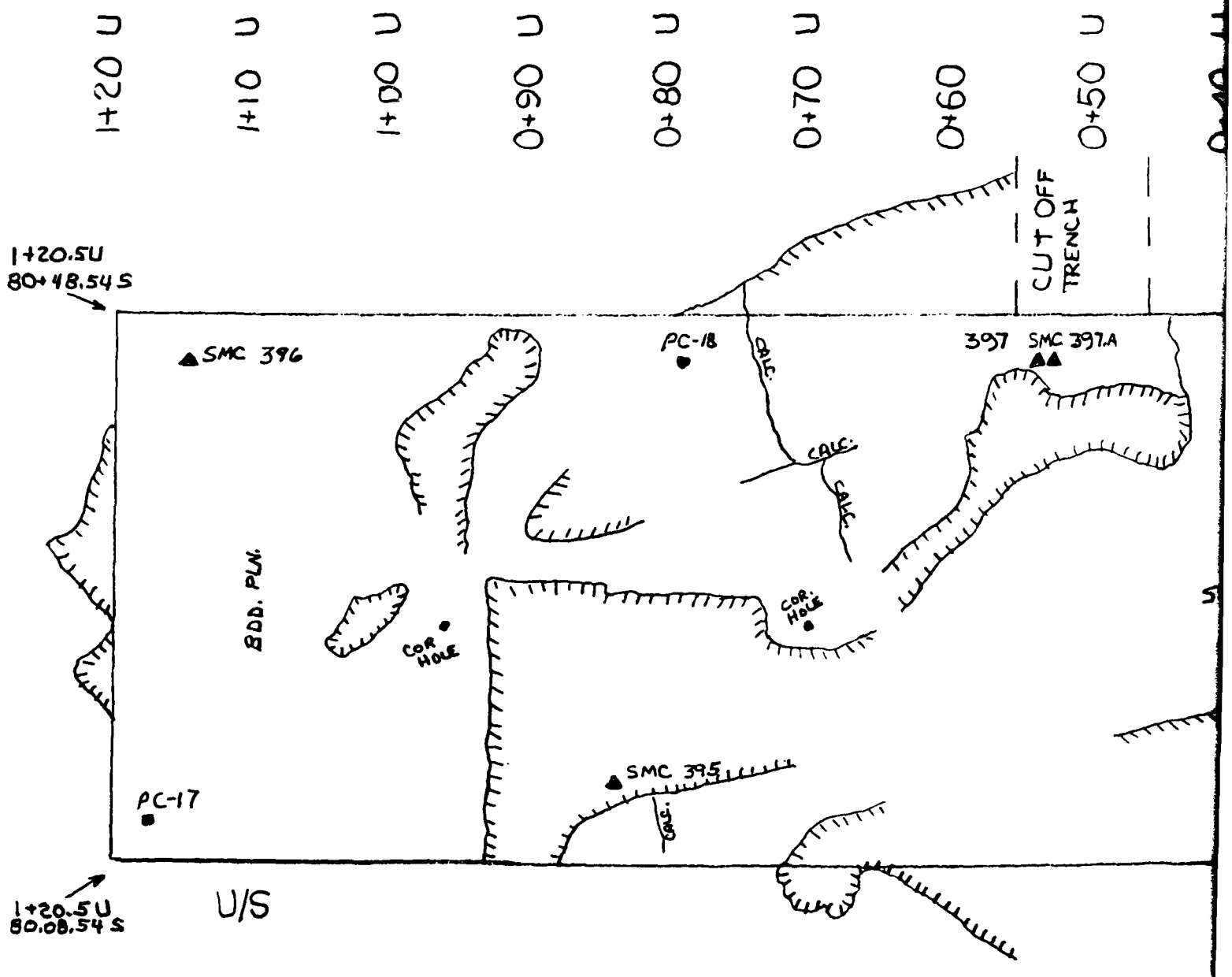
0+20 U

0+10 U

D/S

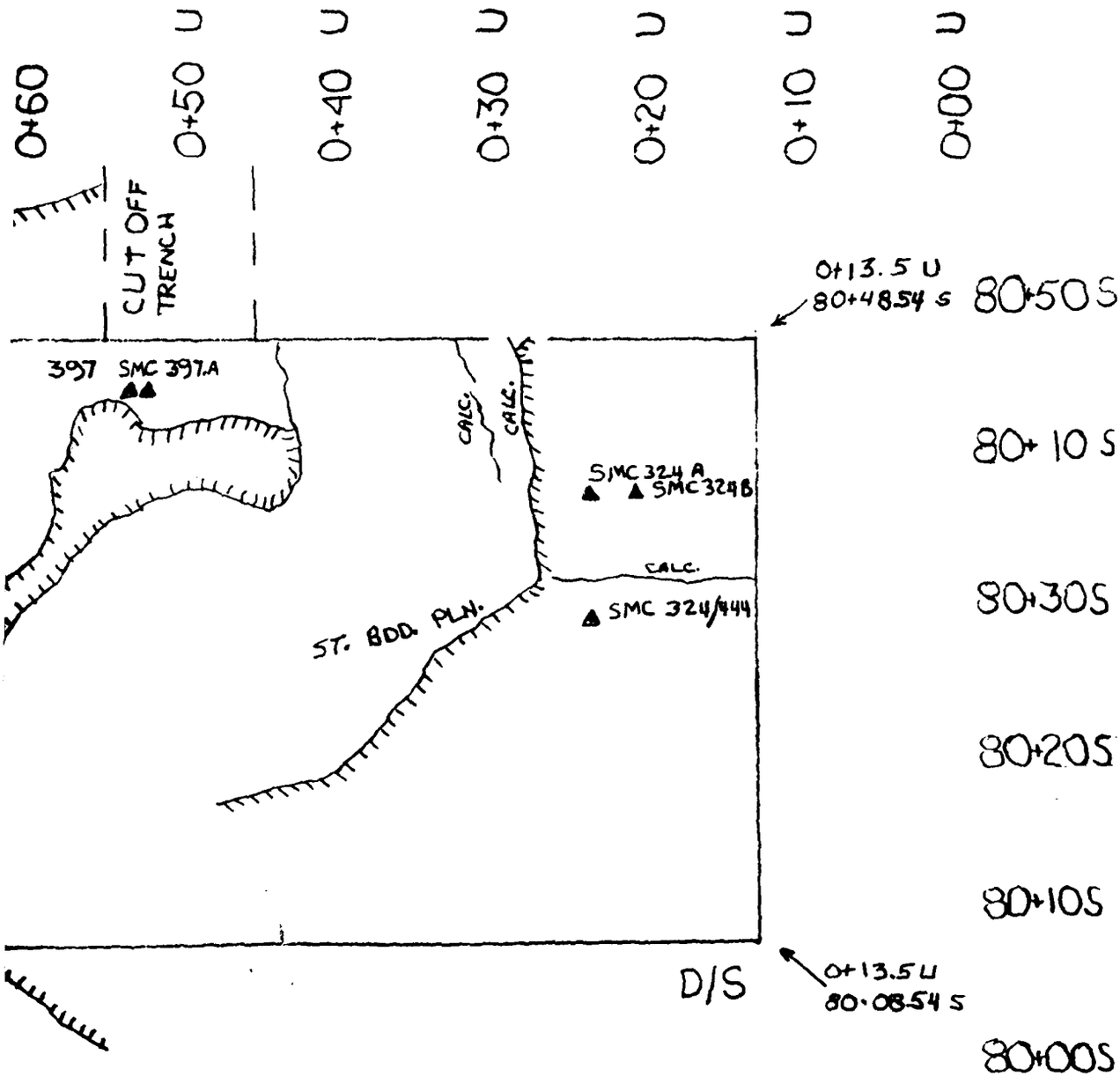
PIER 7

2


1+20 U
1+10 U
1+00 U
0+90 U
0+80 U
0+70 U
0+60
0+50 U
CUT OFF TRENCH
1+20.5U
80+48.54S
SMC 396
PC-18
397 SMC 397.A
CALC.
CALC.
CALC.
BDD. PLN.
COR HOLE
COR HOLE
SMC 395
PC-17
1+20.5U
80.08.54S
U/S

PIER 8

1

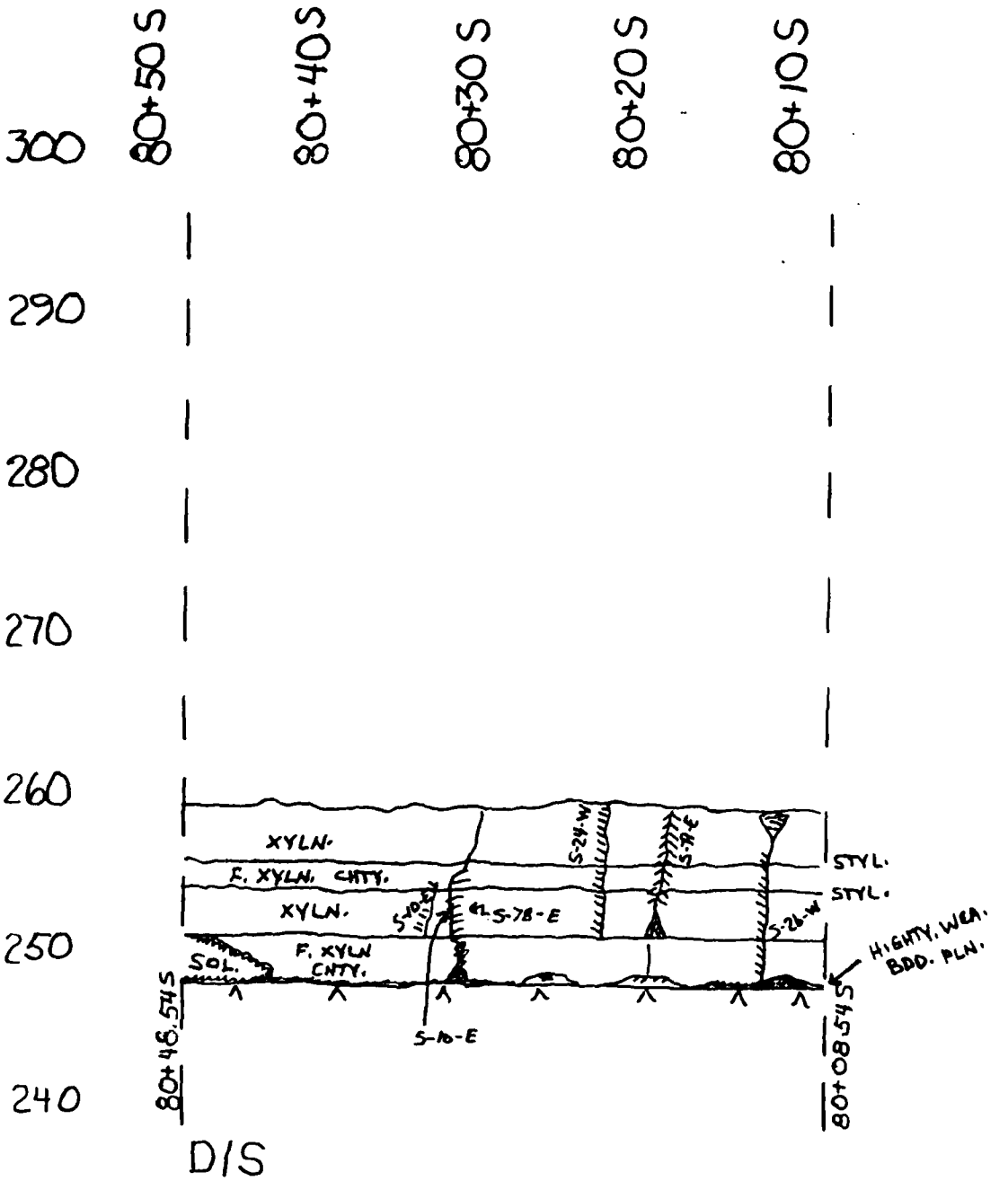


FOUNDATION FLOOR

2

BY ..... DATE ..... SUBJECT ..... SHEET NO. ..... OF .....

CHKD BY ..... DATE ..... JOB NO. .....

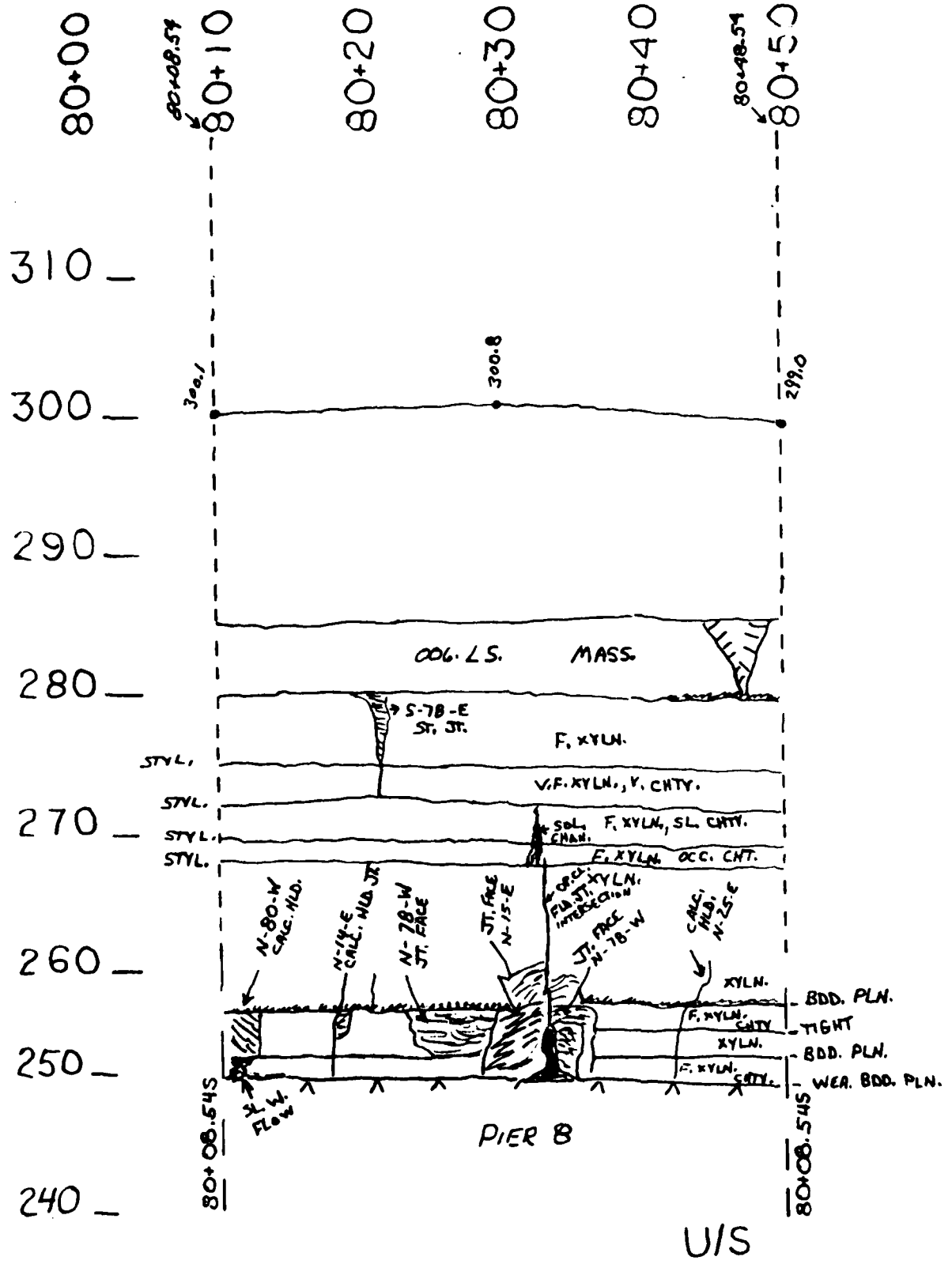


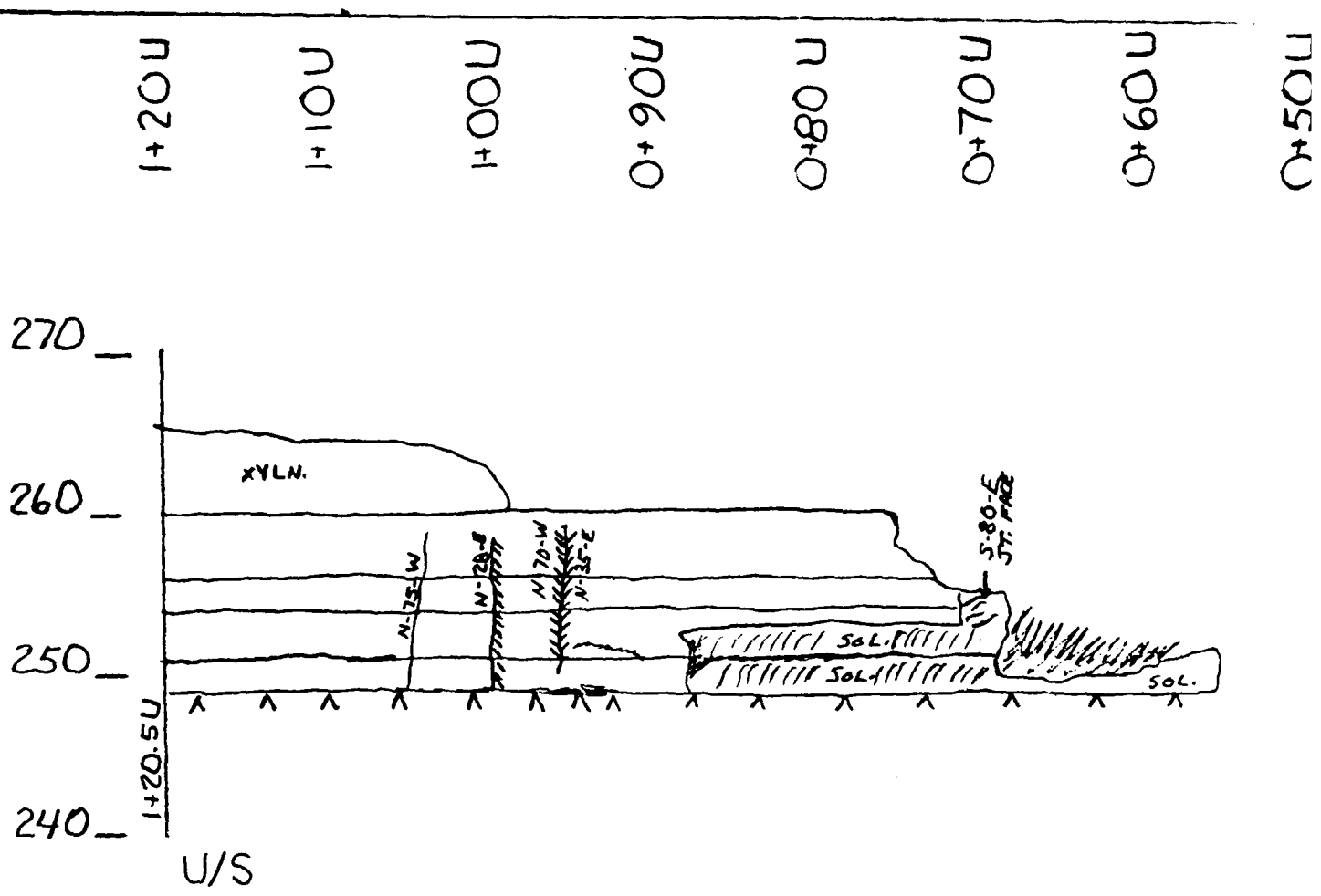
D/S

PIER 8

BY ... DATE ... SUBJECT ... SHEET NO ... OF ...

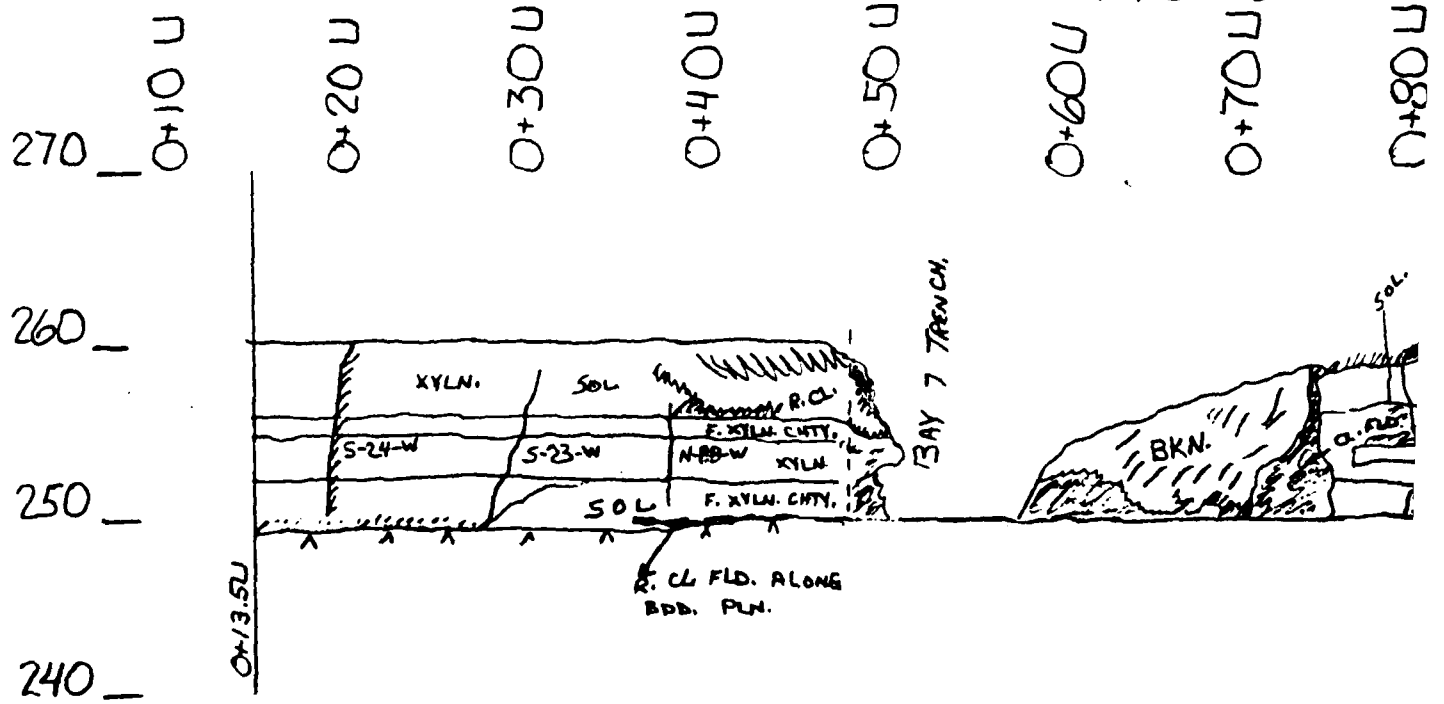
CHKD. BY ... DATE ... JOB NO ...





KY. SIDE

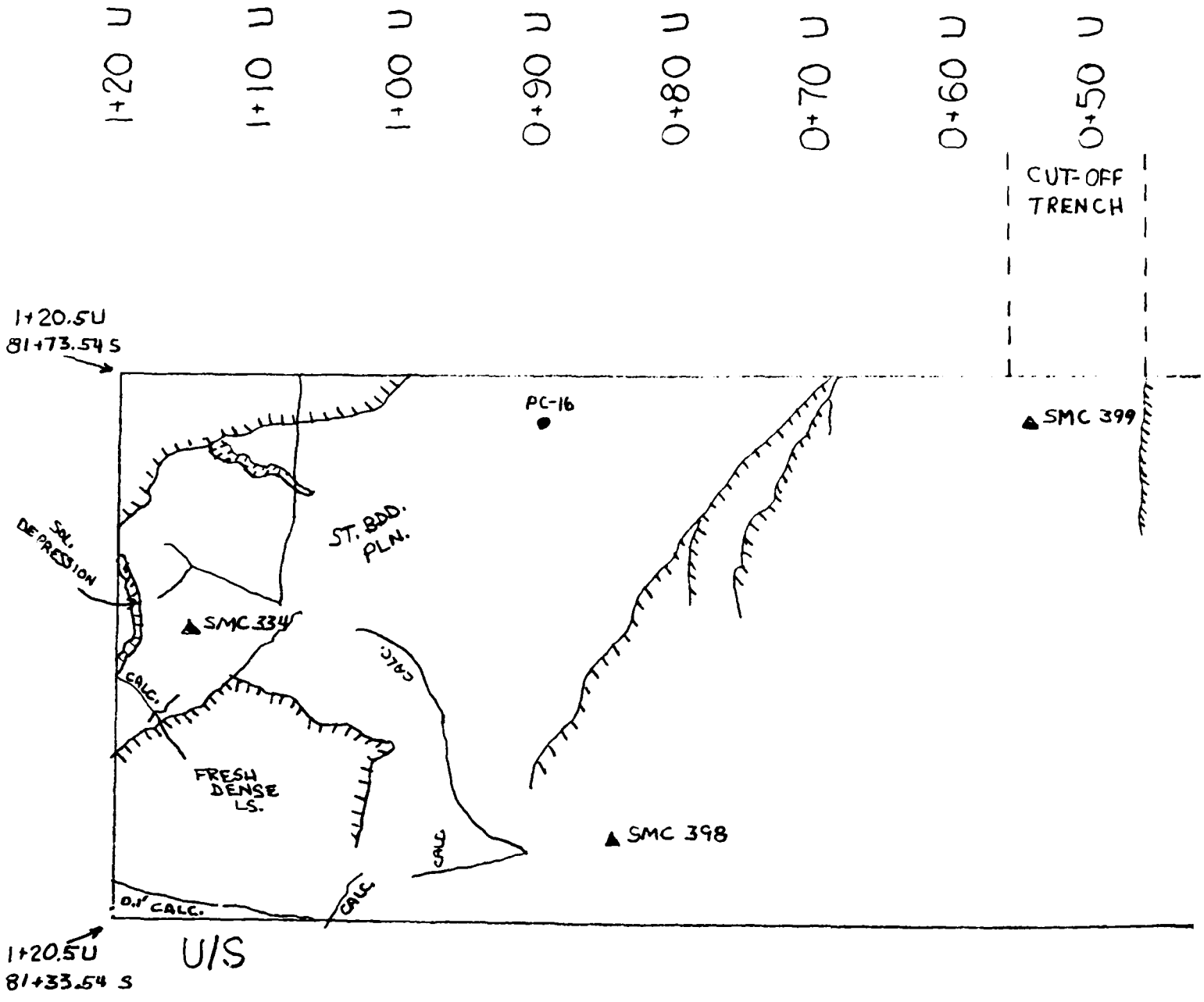
PIER 8



ILL. SIDE

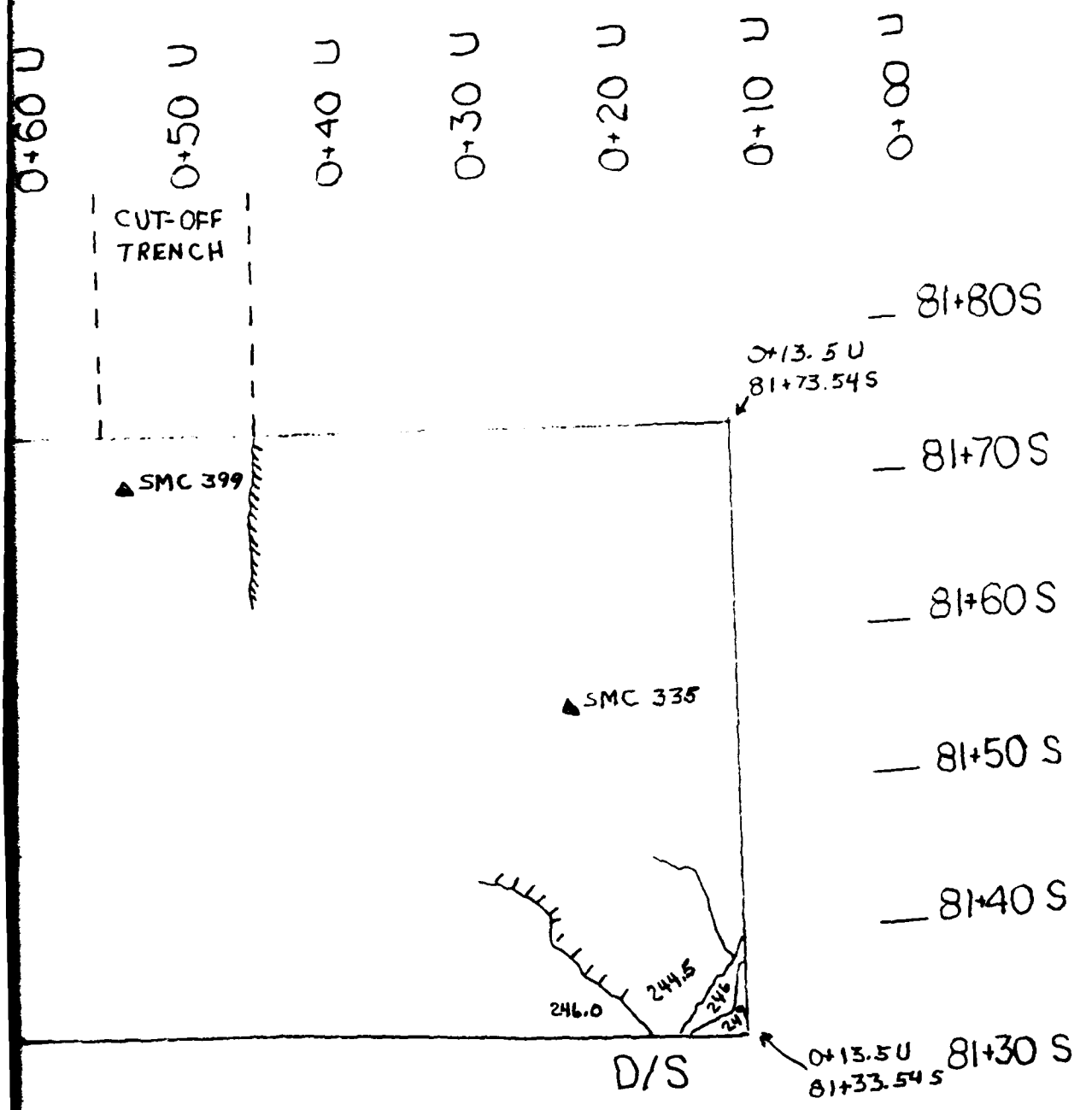
PIER 8

0+80 U
0+70 U
0+60 U
0+50 U
0+40 U
0+30 U
0+20 U
0+10 U
S-80-E JT. FACE
SOL.
SOL.
N-25-E JT. FACE
XYLN.
XYLN.
F. XYLN. CMTY.
N-28-E
XYLN.
F. XYLN. CMTY.
BKN.
P. CL.
FLD.
S-80-E JT.
SOL.
SOL.
0+13.5 U
D/S
PIER 8
0+50 U
0+60 U
0+70 U
0+80 U
0+90 U
1+00 U
1+10 U
1+20 U
BAY 7 TRENCH
BKN.
SOL.
O. FLD.
N-74-W
N-26°-E
XYLN.
N-14-E
N-78-W
N-75-W
F. XYLN. CMTY.
XYLN.
XYLN.
F. XYLN. CMTY.
XYLN.
STYL.
STYL.
STYL.
SOL.
1+20.5 U
U/S
PIER 8


1+20 U
1+10 U
1+00 U
0+90 U
0+80 U
0+70 U
0+60 U
0+50 U
CUT-OFF TRENCH
1+20.5U
81+73.54 S
PC-16
SMC 399
ST. BDD. PLN.
SOIL DEPRESSION
SMC 334
CALC.
FRESH DENSE LS.
SMC 398
0.1' CALC.
1+20.5U
81+33.54 S
U/S

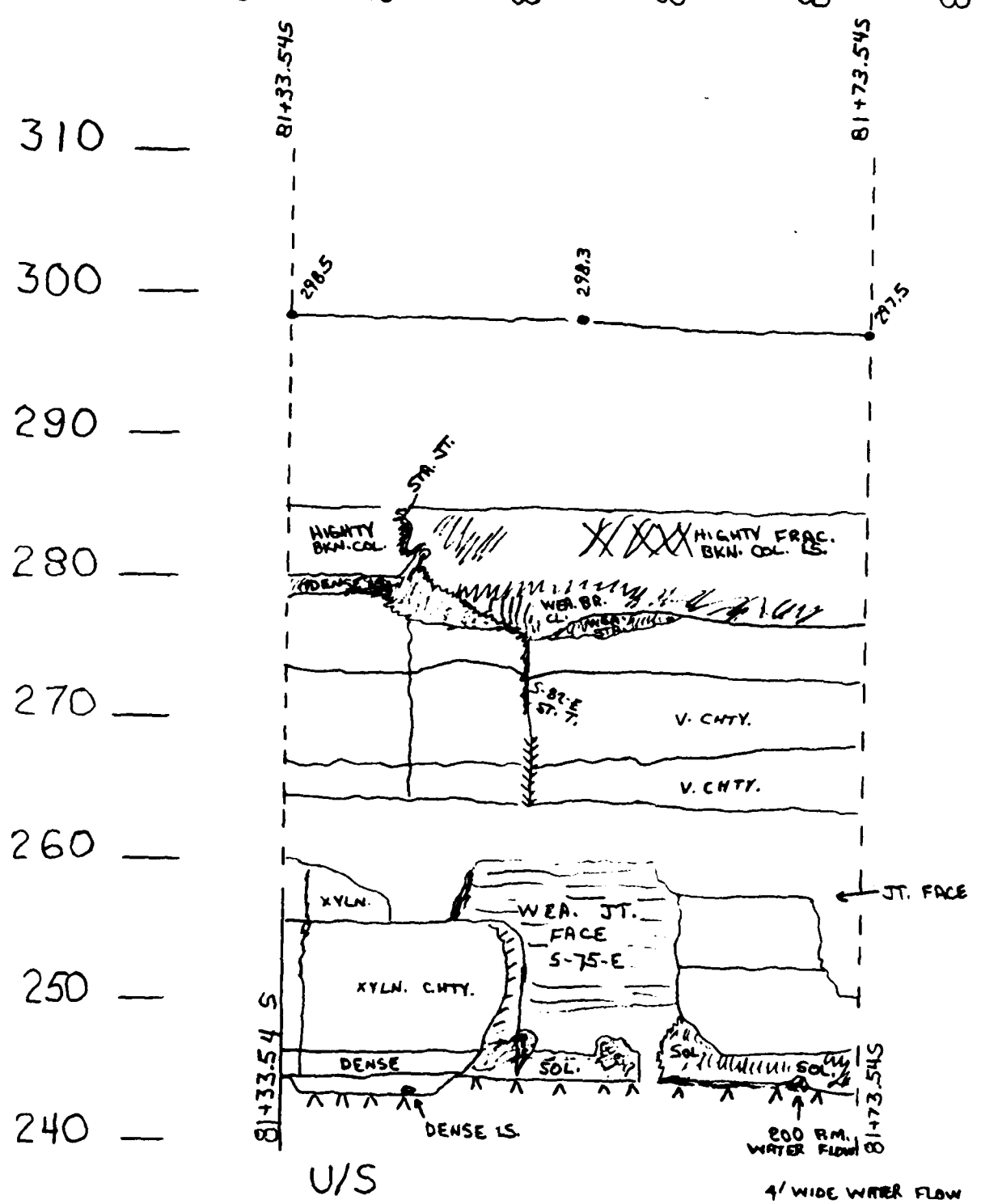
PIER 9

1



FOUNDATION FLOOR

BY ..... DATE ..... SUBJECT ..... SHEET NO ..... OF .....
CHKD. BY ..... DATE ..... JOB NO .....

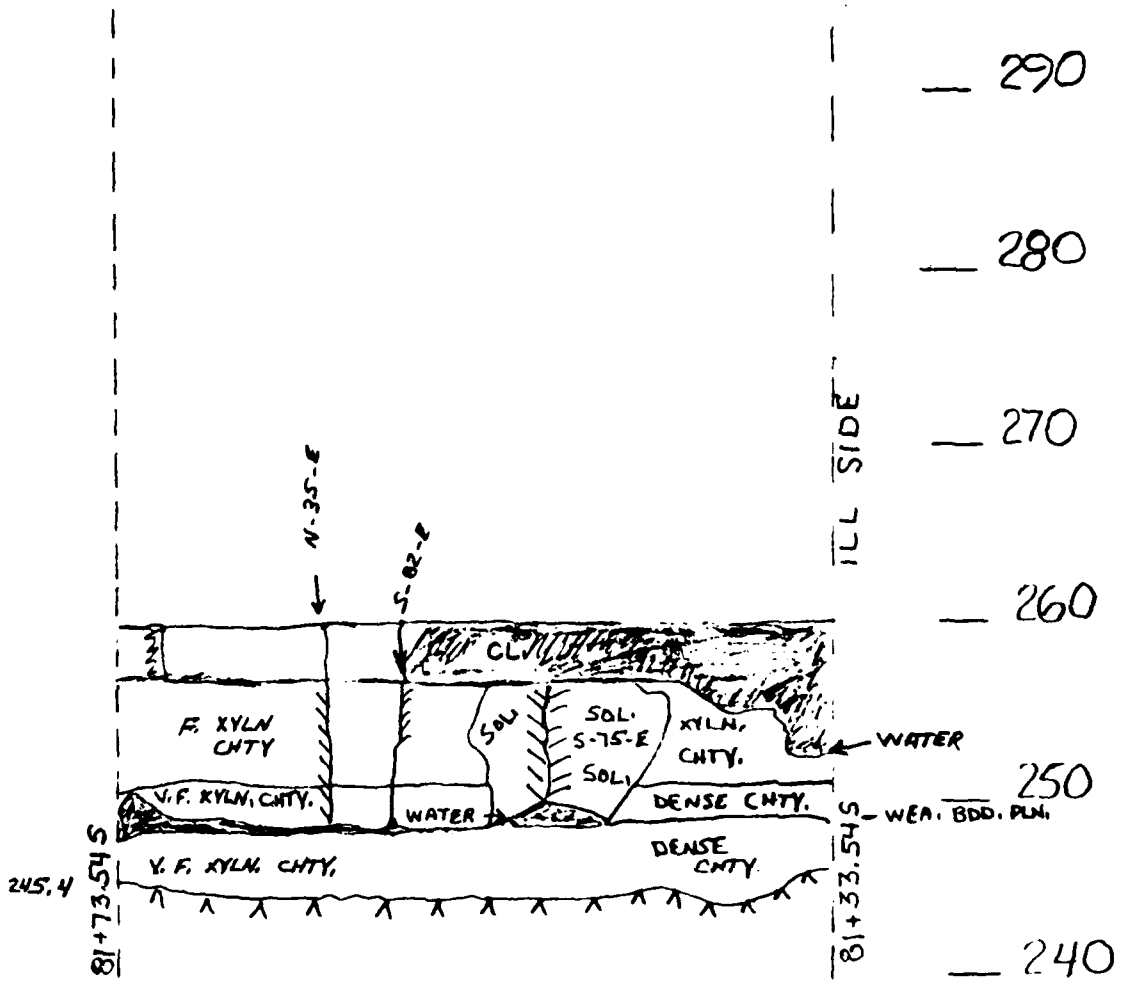


PIER 9

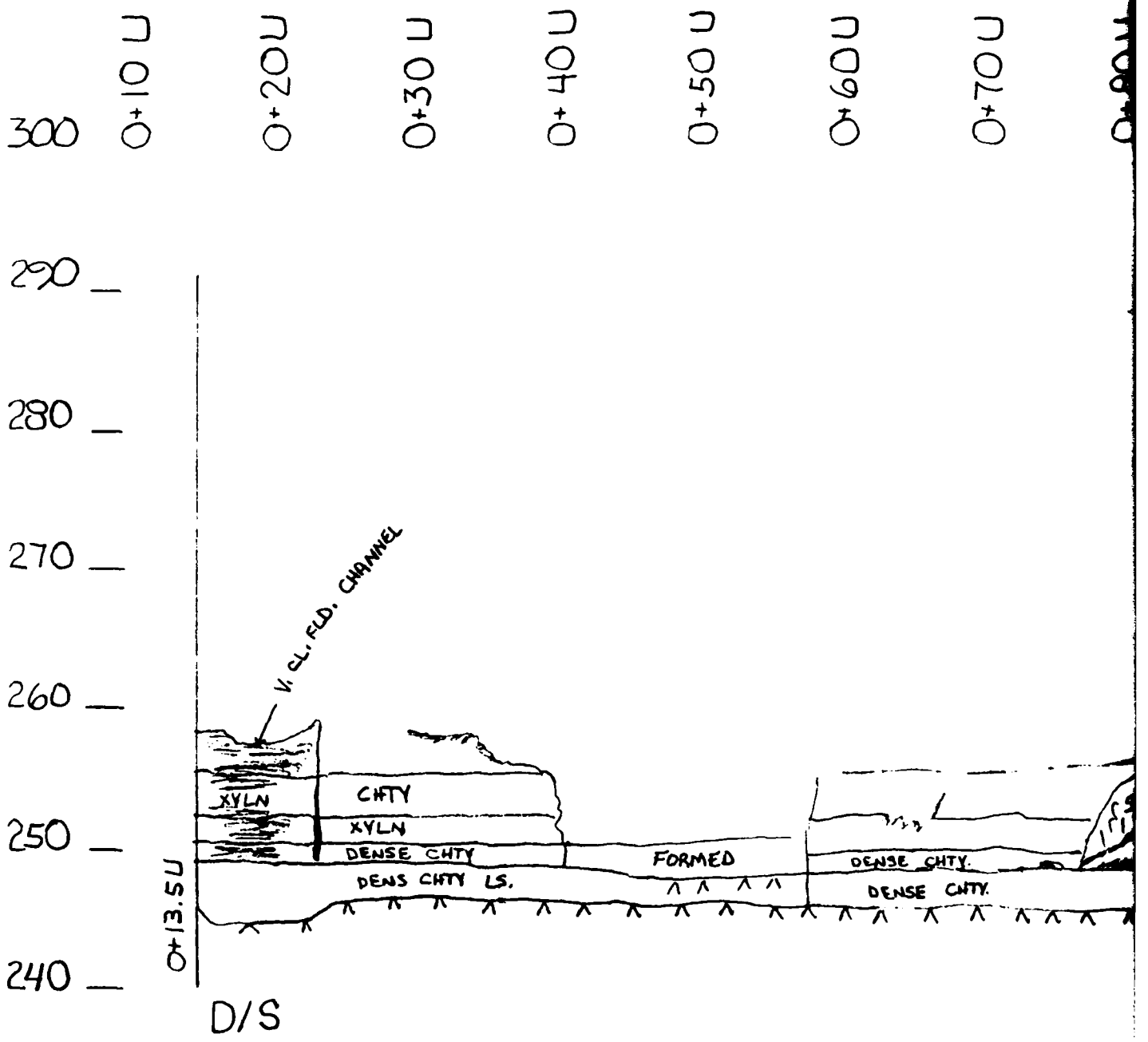
BY ..... DATE ..... SUBJECT ..... SHEET NO ..... OF .....

CHKD. BY ..... DATE ..... JOB NO .....

81+70S 81+60S 81+50S 81+40S 81+30S



D/S

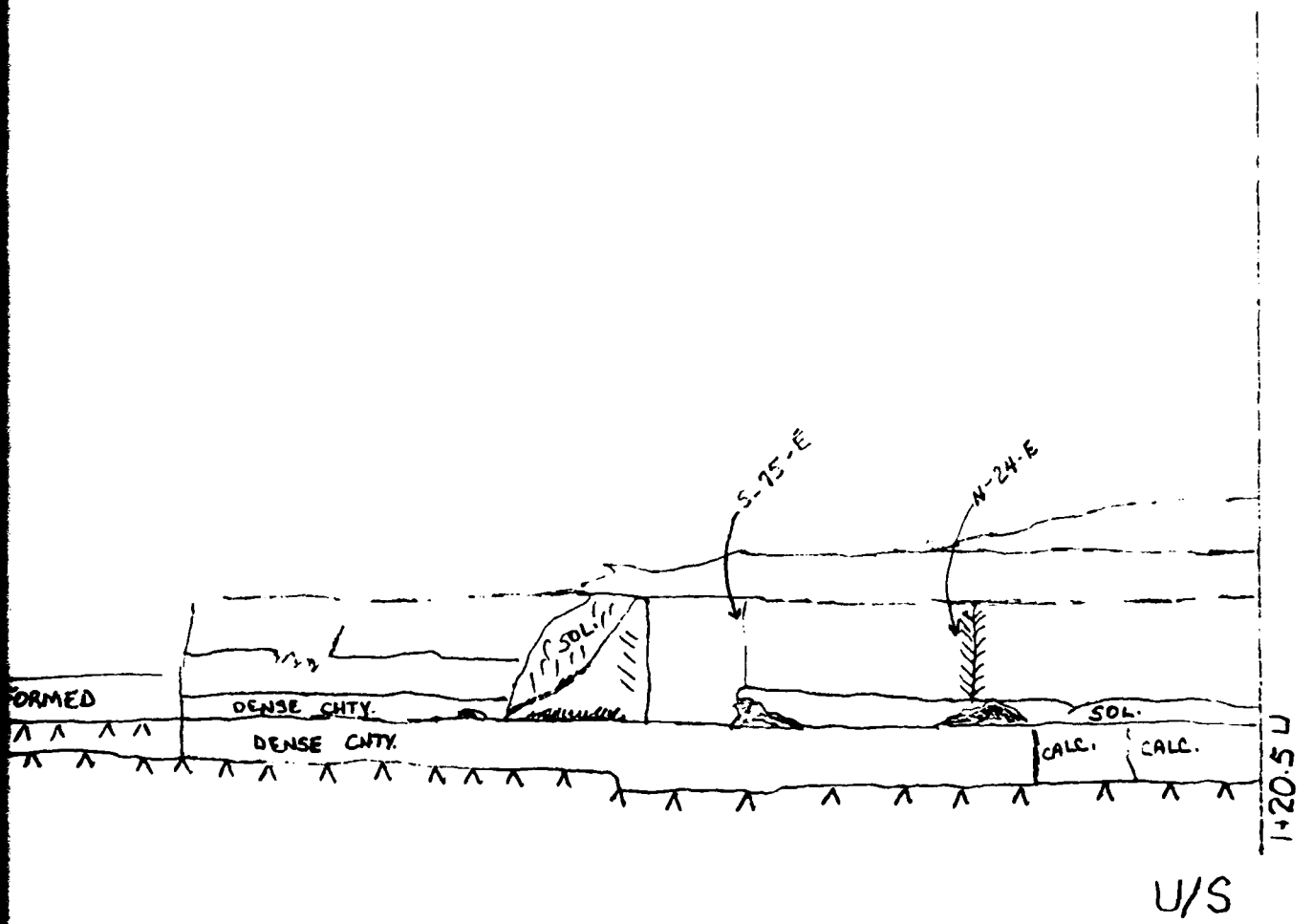


ILL SIDE

PIER 9

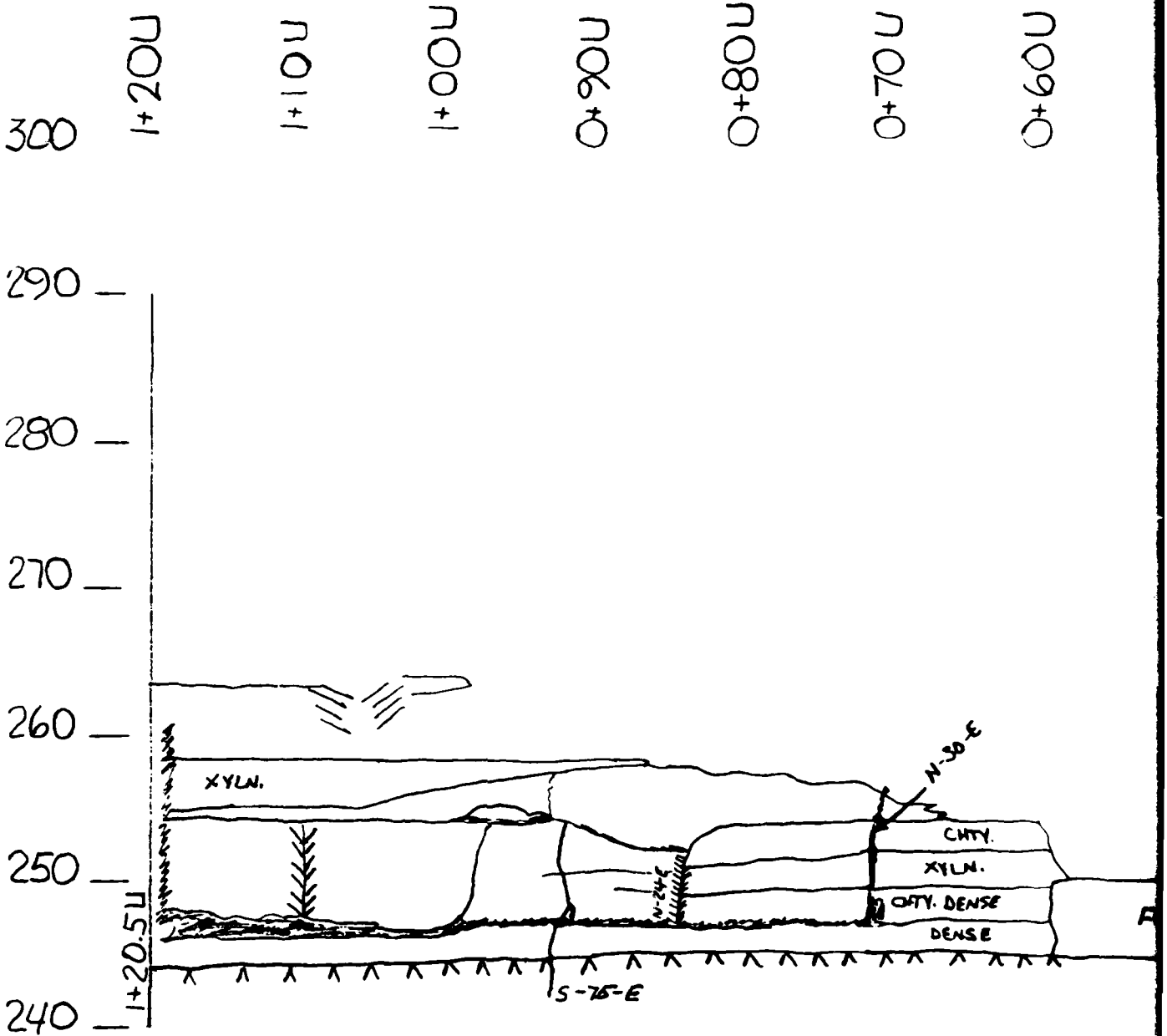
1

0+50 U | 0+60 U | 0+70 U | 0+80 U | 0+90 U | 1+00 U | 1+10 U | 1+20 U



U/S

PIER 9



U/S

KY. SIDE

PIER 9

1

0+80 U

0+70 U

0+60 U

0+50 U

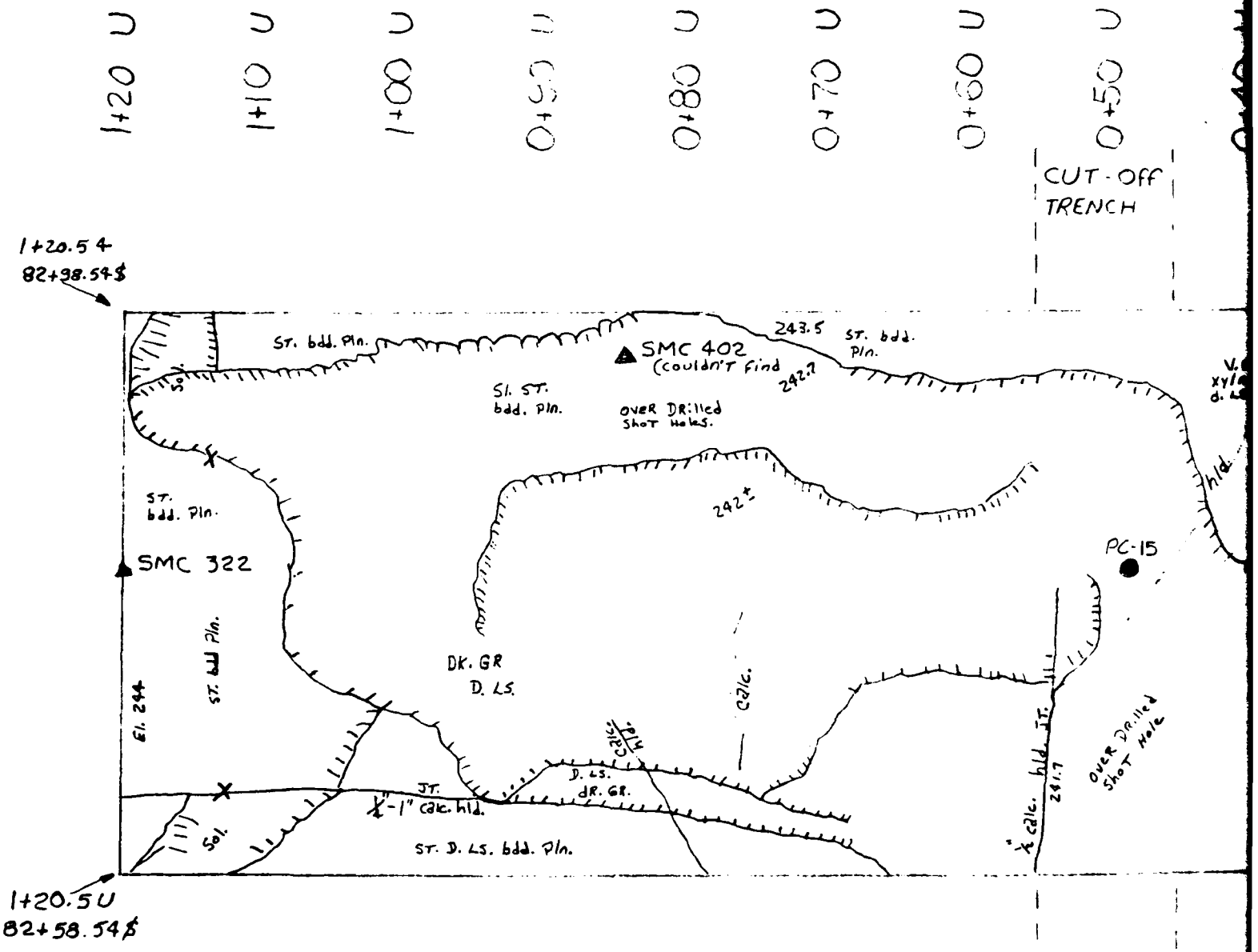
0+40 U

0+30 U

0+20 U

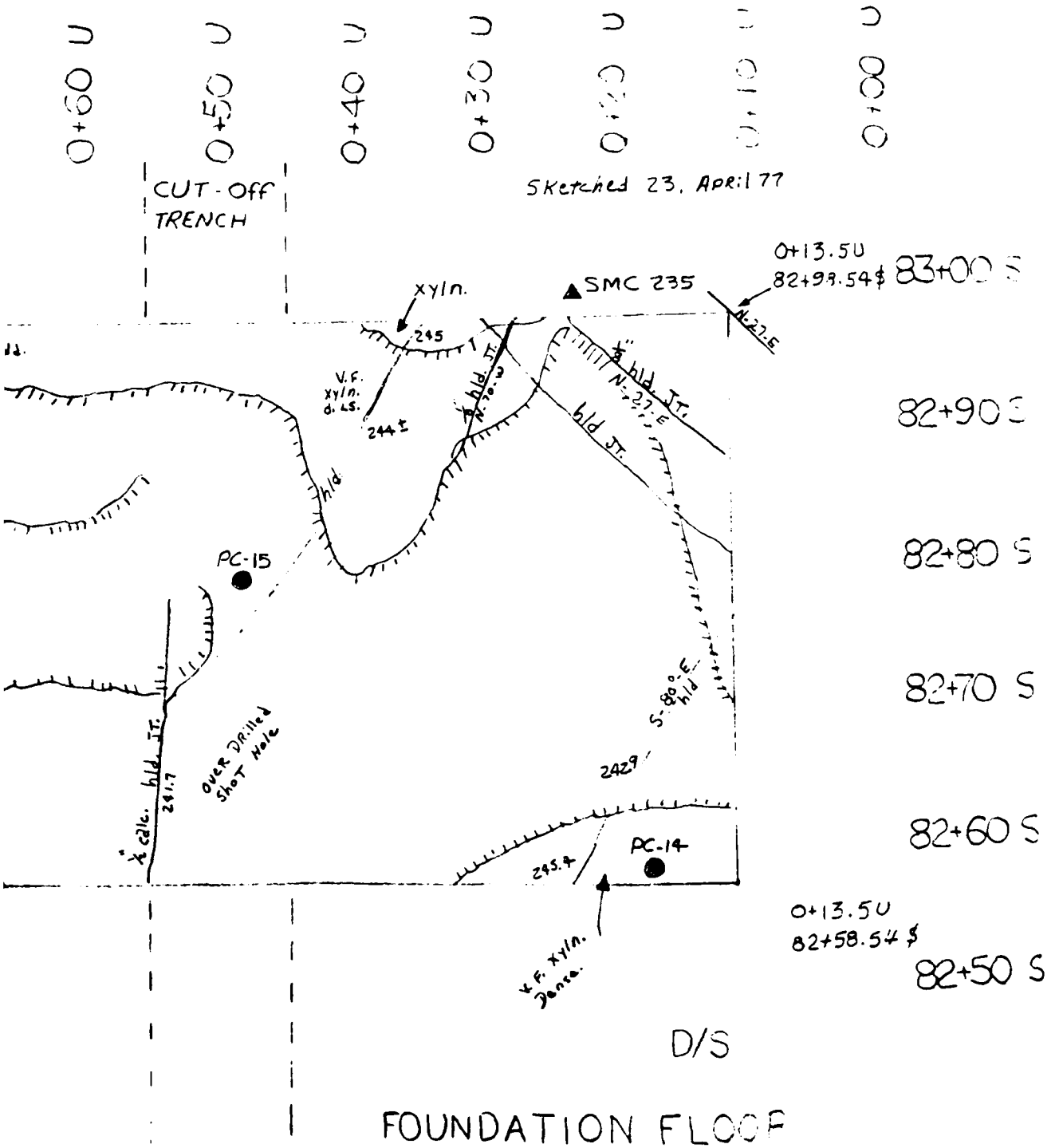
0+10 U

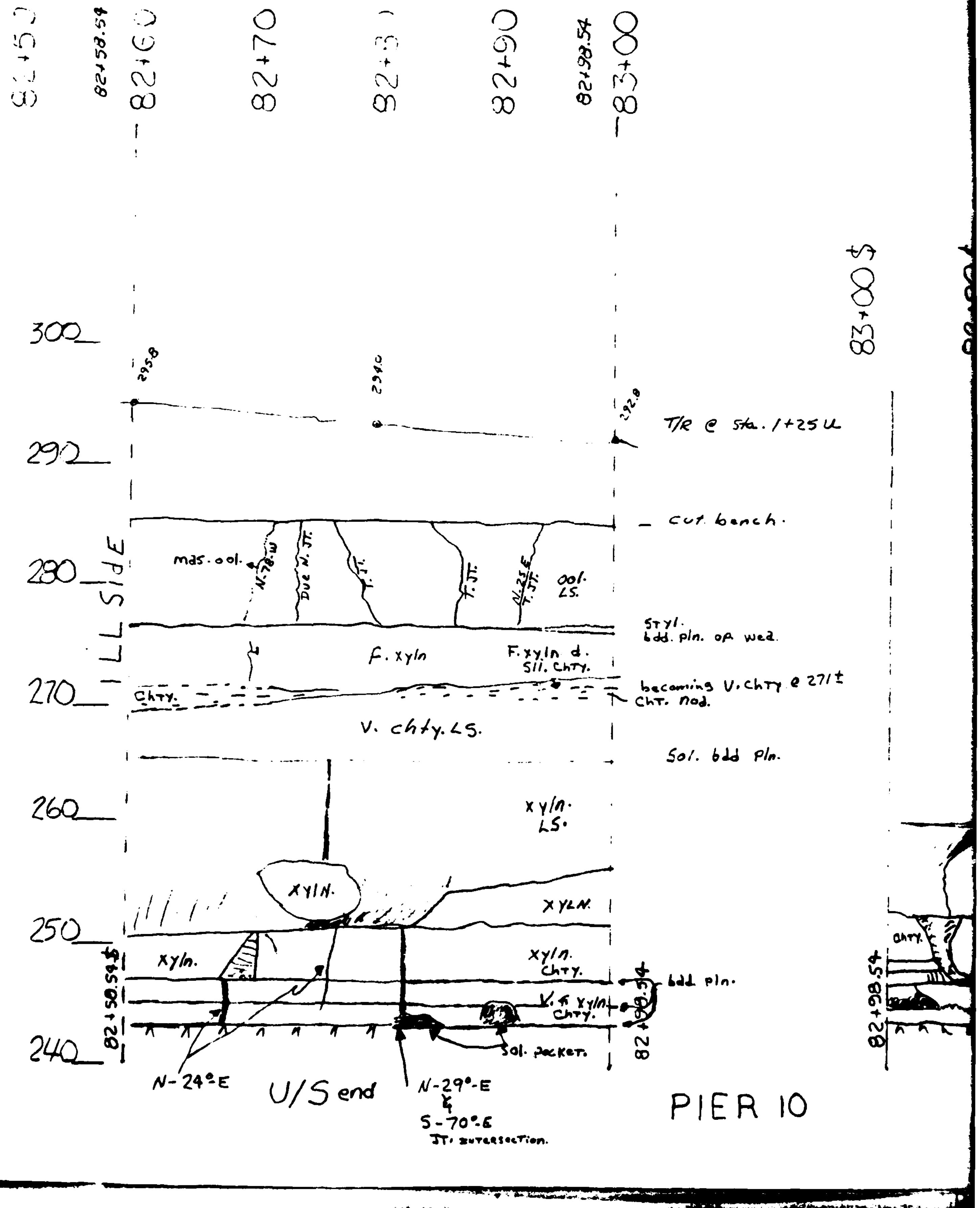
PIER 9


1+20 U
1+10 U
1+00 U
0+90 U
0+80 U
0+70 U
0+60 U
0+50 U
CUT-OFF TRENCH
1+20.54
82+98.54$
St. bdd. Pln.
SMC 402
(couldn't find
243.5
St. bdd. Pln.
242.?
Sl. ST. bdd. Pln.
over DRilled Shot Holes.
Sol
St. bdd. Pln.
SMC 322
242±
PC-15
St. bdd. Pln.
El. 244
DK. GR D. LS.
calc.
D. LS. dR. GR.
JT. ½"-1" calc. hld.
St. D. LS. bdd. Pln.
241.7
over DRilled Shot Hole
1+20.5U
82+58.54$

U/S

PIER 10


0+60 U
0+50 U
0+40 U
0+30 U
0+20 U
0+10 U
0+00 U
CUT-OFF TRENCH
Sketched 23, April 77
0+13.5U
82+99.54$
83+00 S
xyln.
SMC 235
N. 27.5
245
V.F. xyln. d. LS.
244±
N. hld. Jt.
hld Jt.
N. 27.5 E
82+90 S
hld
PC-15
82+80 S
S. 80° E hld
82+70 S
OVER DRILLED SHOT HOLE
241.7
2429
82+60 S
PC-14
295.4
0+13.5U
82+58.54$
82+50 S
V.F. xyln. Dance.
D/S
FOUNDATION FLOOR


82+58.54
82+60
82+70
82+90
82+98.54
83+00
83+00
300
290
280
270
260
250
240
295.8
294.0
292.8
T/R @ Sta. 1+25 L
cut bench.
HILL SIDE
mas. ool.
N.78°W
Due N. JT.
T. JT.
T. JT.
N.25°E T. JT.
ool. LS.
Styl. bdd. pln. of wea.
F. xyln
F. xyln d. Sli. Chty.
becoming V. chty @ 271±
Chty.
Cht. nod.
V. chty. LS.
Sol. bdd Pln.
xyln. LS.
XYLN.
XYLN.
xyln.
xyln. Chty.
bdd. pln.
V. f. xyln. Chty.
82+58.54
82+98.54
Sol. pocket.
N-24°E
U/S end
N-29°-E
&
S-70°-E
JT. intersection.
PIER 10
Chty.
82+98.54

83+00

83+00 ℄ 82+90 ℄ 82+80 ℄ 82+70 ℄ 82+60 ℄ 300

232.0 T/R @ Sta. 1+25 Lt

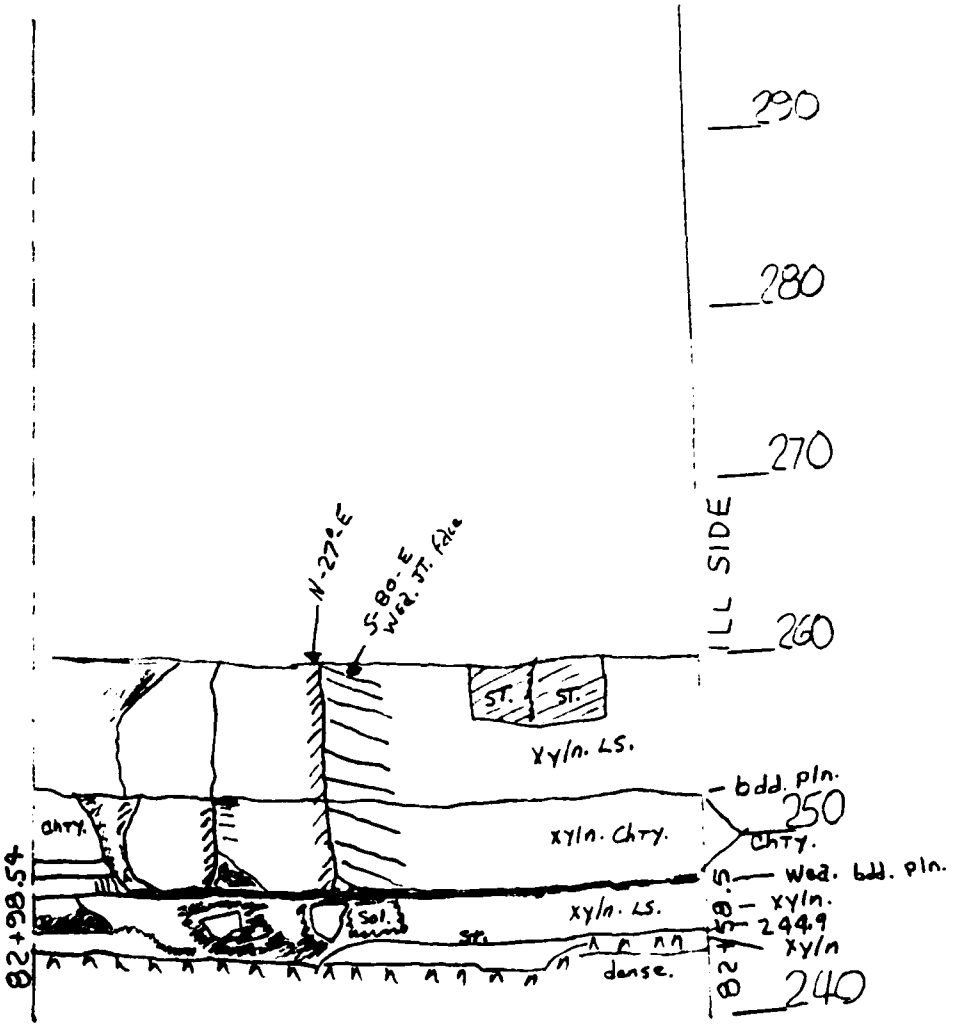
– cut bench.

Styl. bdd. pln. oA wed.

becoming V. chty @ 271± cht. nod.

Sol. bdd. Pln.

82+98.5± bdd pln.



PIER 10

D/S end

FPII-38

0+10 U
0+20 U
0+30 U
0+40 U
0+50 U
0+60 U
0+70 U
300
290
280
270
260
250
240
Xyln. Cht.
Xyln. Cht.
Xyln
Wea St.
0+13.5 U
Removed
D/S P/S
D/S
CUT-OFF Trench.
U/S P/S
Sat.
ILL SIDE
PIER 10

0+60 U

0+70 U

0+80 U

0+90 U

1+00 U

1+10 U

1+20 U

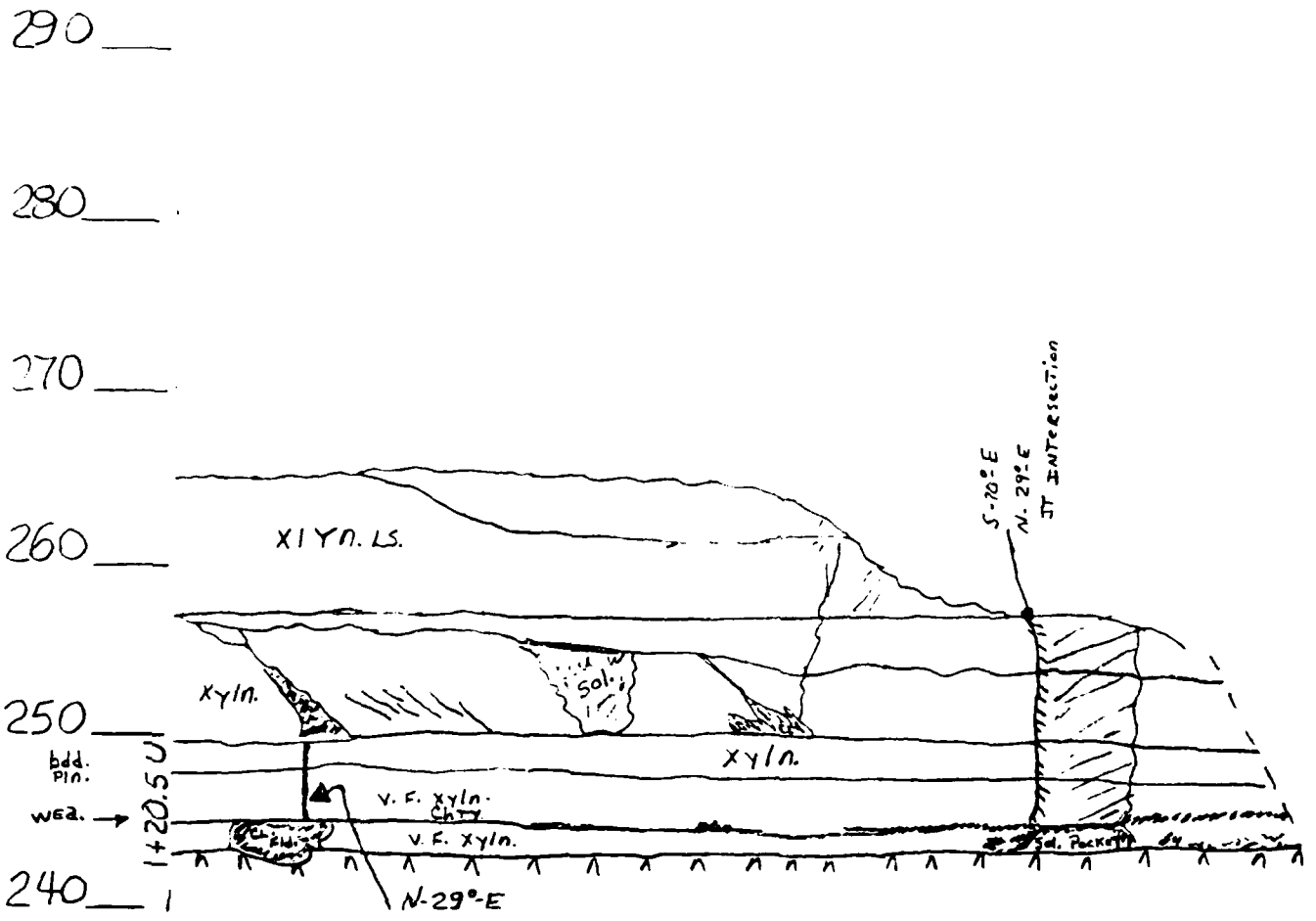
CUT-OFF Trench.

PIER 10

2

1+20 U | 1+10 U | 1+00 U | 0+90 U | 0+80 U | 0+70 U | 0+60 U

Sketched 23-April 77



KY SIDE

PIER 10

1

0+70 U

0+60 U

0+50 U

0+40 J

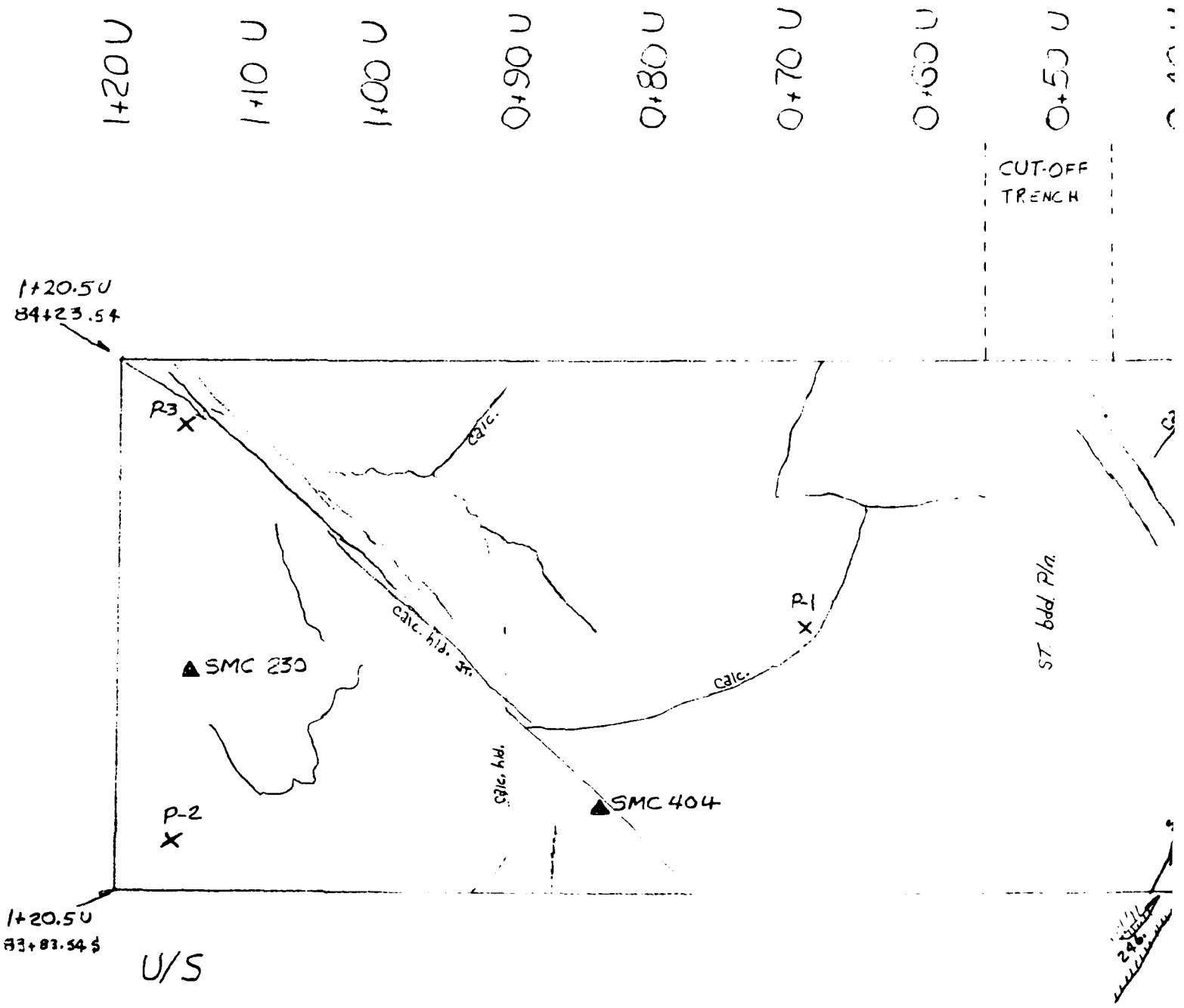
0+30 U

0+20 U

0+10 U

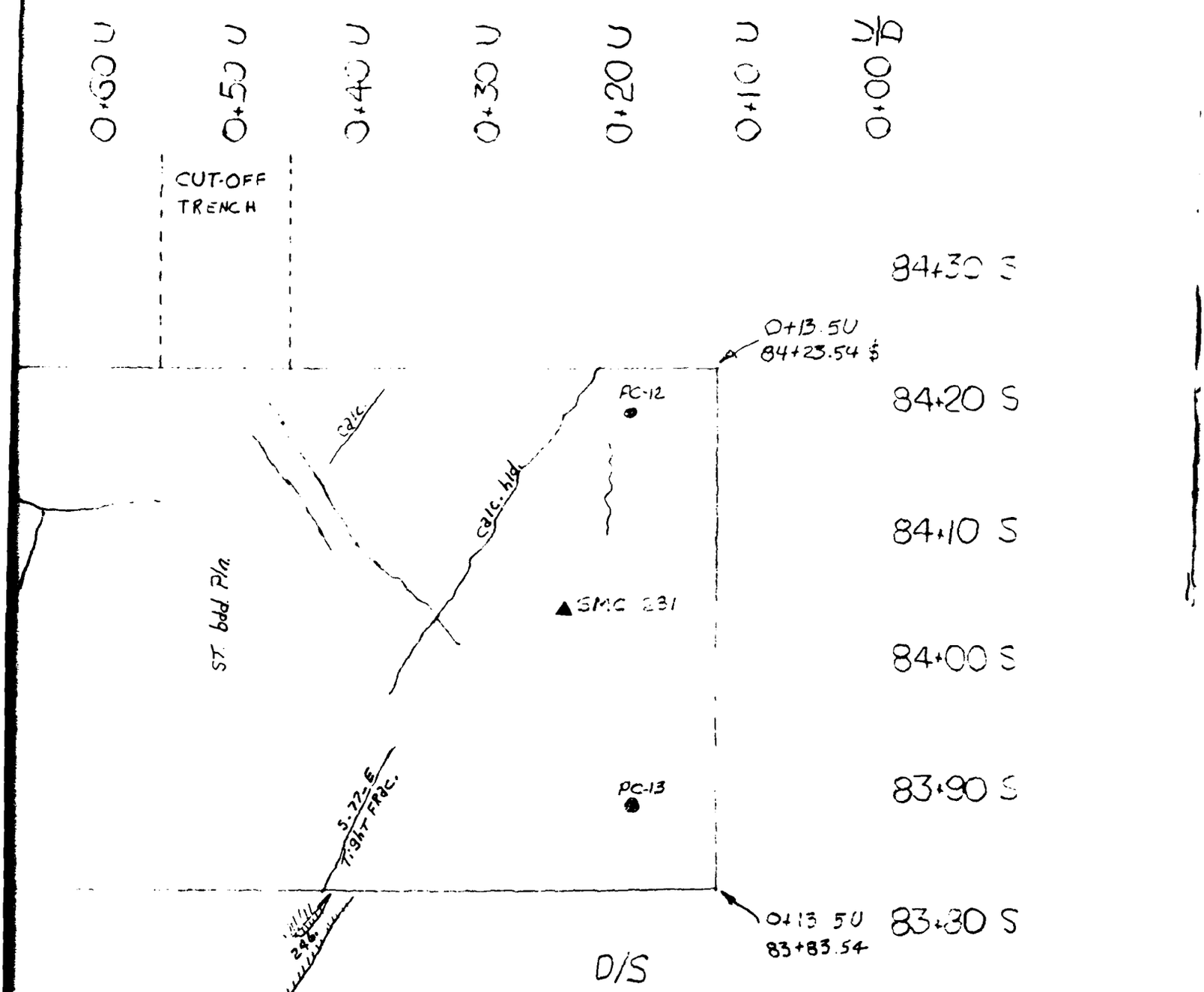
Sketched 23-April 77

PIER 10


1+20 U
1+10 U
1+00 U
0+90 U
0+80 U
0+70 U
0+60 U
0+50 U
CUT-OFF TRENCH
1+20.5 U
84+23.54
R3
calc.
calc. hld. 35°
R-1
calc.
ST bdd P/a.
SMC 230
SMC 404
calc. h.d.
P-2
1+20.5 U
83+83.54 $
U/S
246.

PIER 11

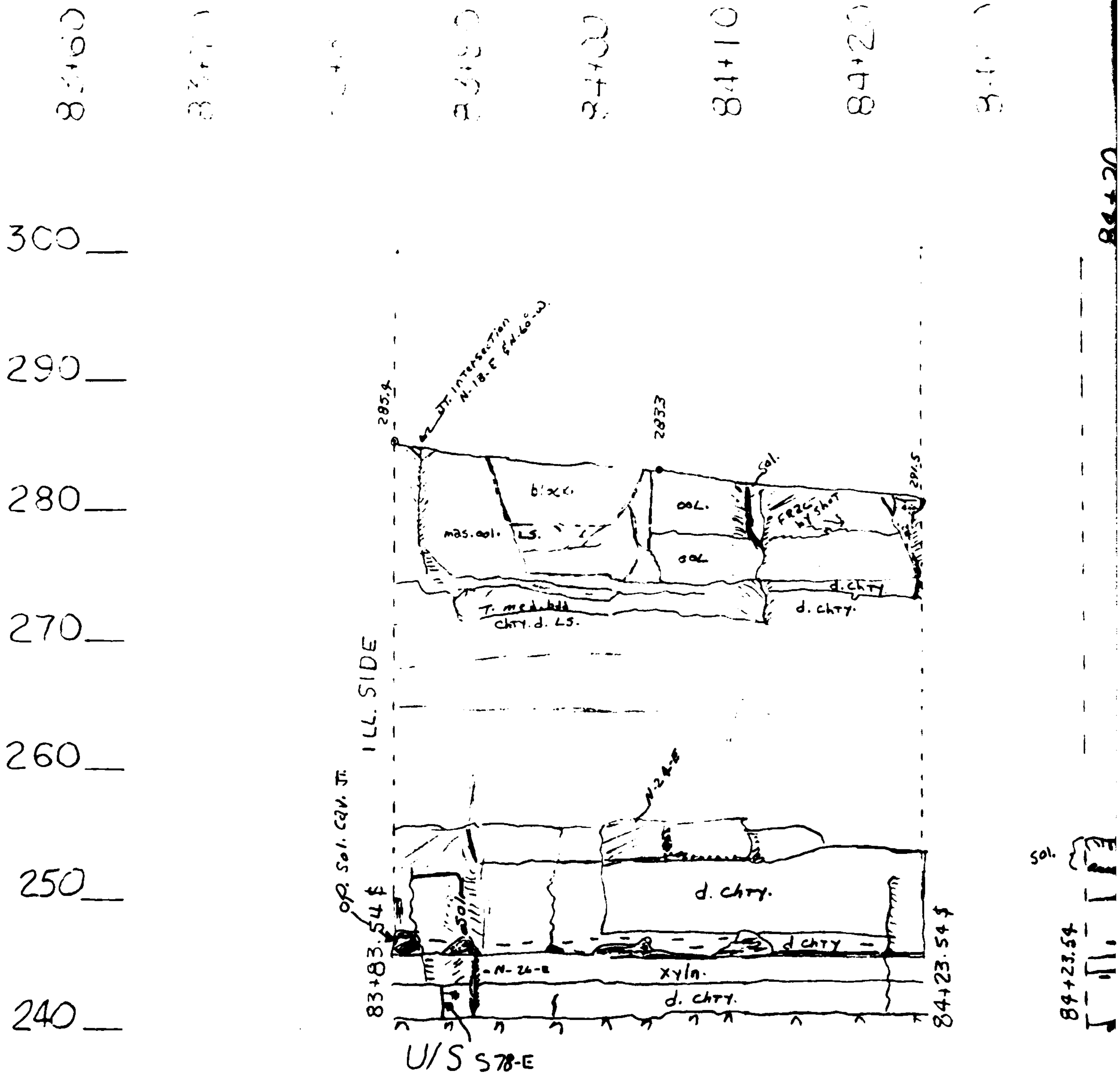
1



FOUNDATION FLOOR

FOUNDING ELEV. 241

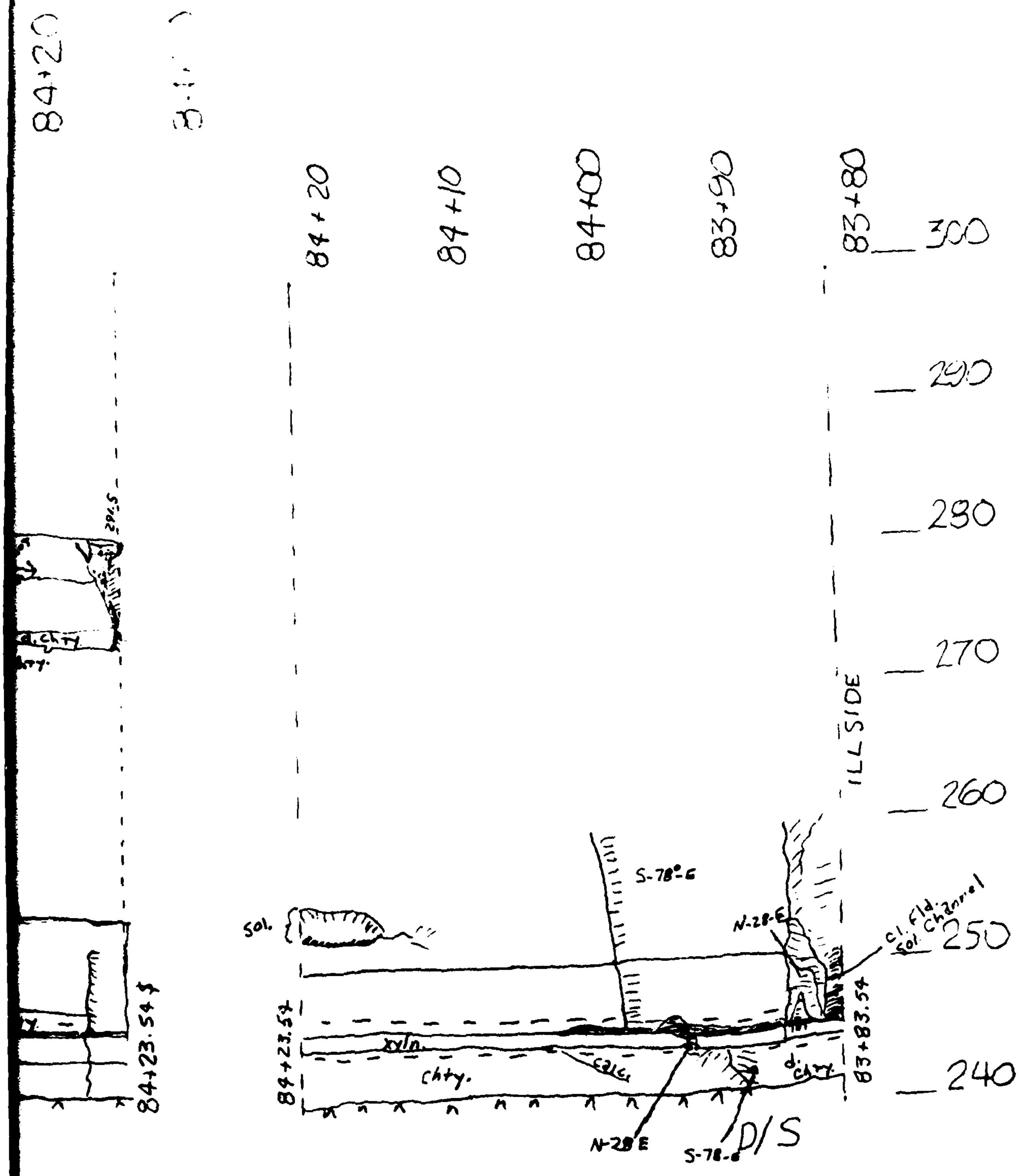
2



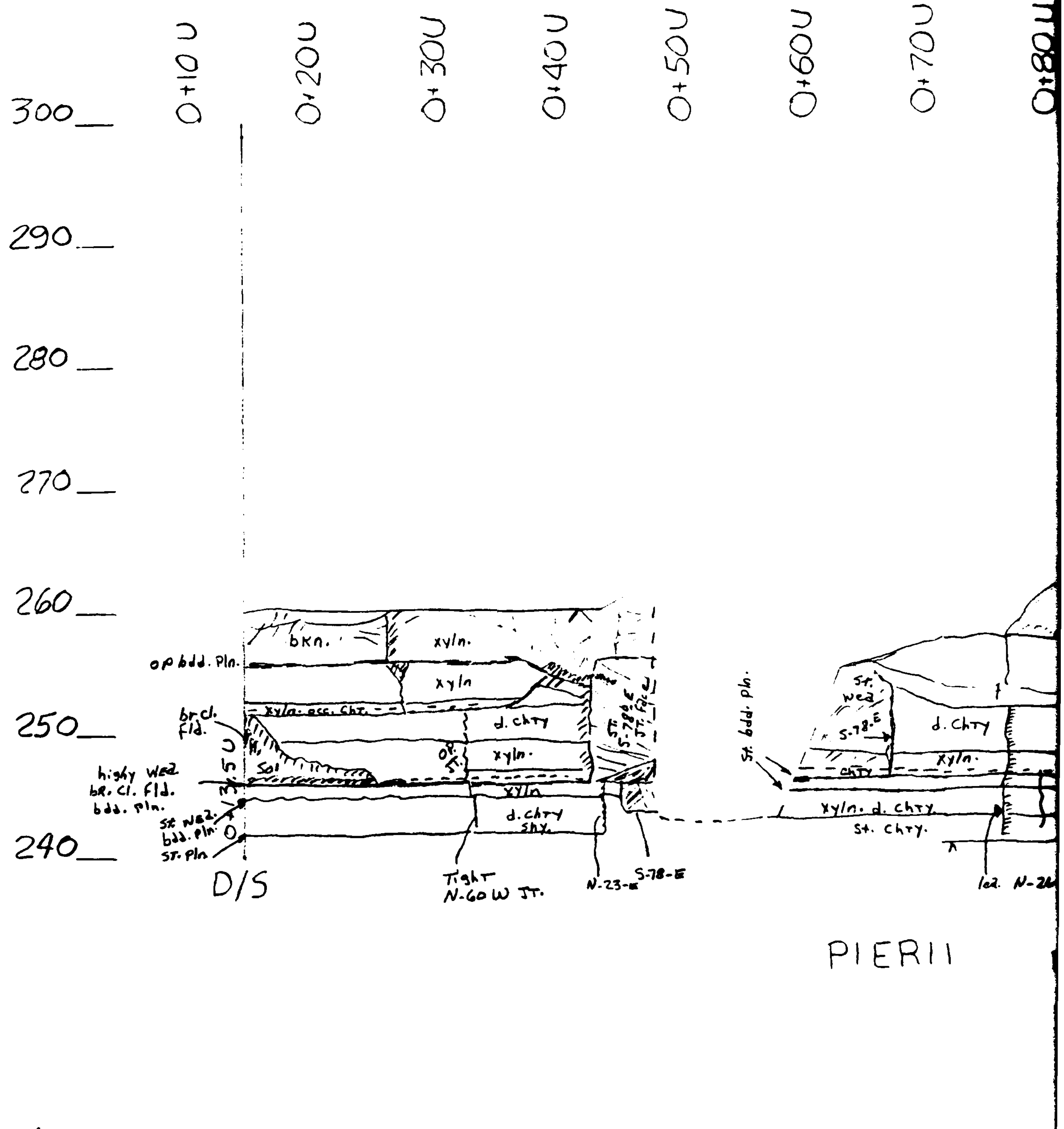
83+60
84+10
84+20
300
290
280
270
260
250
240
285.4
JT. Intersection N.18.E & N.60.W
283.3
Sol.
bl.xc.
mas. ool.
LS.
ool.
ool.
d. chty
d. chty.
T. med. bdd
chty. d. LS.
ILL. SIDE
N.24.E
OP. Sol. Cav. JT.
d. chty.
Sol.
d chty
83+83.54 ¢
84+23.54 ¢
N-26-E
xyln.
d. chty.
U/S S78-E
84+20
Sol.
84+23.54

PIER 11

1


84+20
84+10
84+00
83+90
83+80
300
290
280
270
260
250
240
S-78°-E
N-28-E
Sol.
xyln.
chty.
calc.
d. chty.
Cl. fld. Sol. Channel
84+23.54
83+83.54
N-28 E
S-78-E
D/S
ILL SIDE

PIER 11


300
290
280
270
260
250
240
0+10U
0+20U
0+30U
0+40U
0+50U
0+60U
0+70U
0+80U
bkn.
xyln.
op bdd. Pln.
xyln
xyln. occ. Cht.
br. cl. fld.
d. chty
xyln.
highly Wed. bR. Cl. Fld. bdd. Pln.
St. Wed. bdd. Pln.
ST. Pln
xyln
d. chty shy.
D/S
Tight N-60W JT.
N-23-E
S-78-E
St. bdd. pln.
St. Wed.
S-78-E
d. Chty
xyln.
chty
xyln. d. chty.
St. Chty.
PIER 11

1

0+50 U

0+60 U

0+70 U

0+80 U

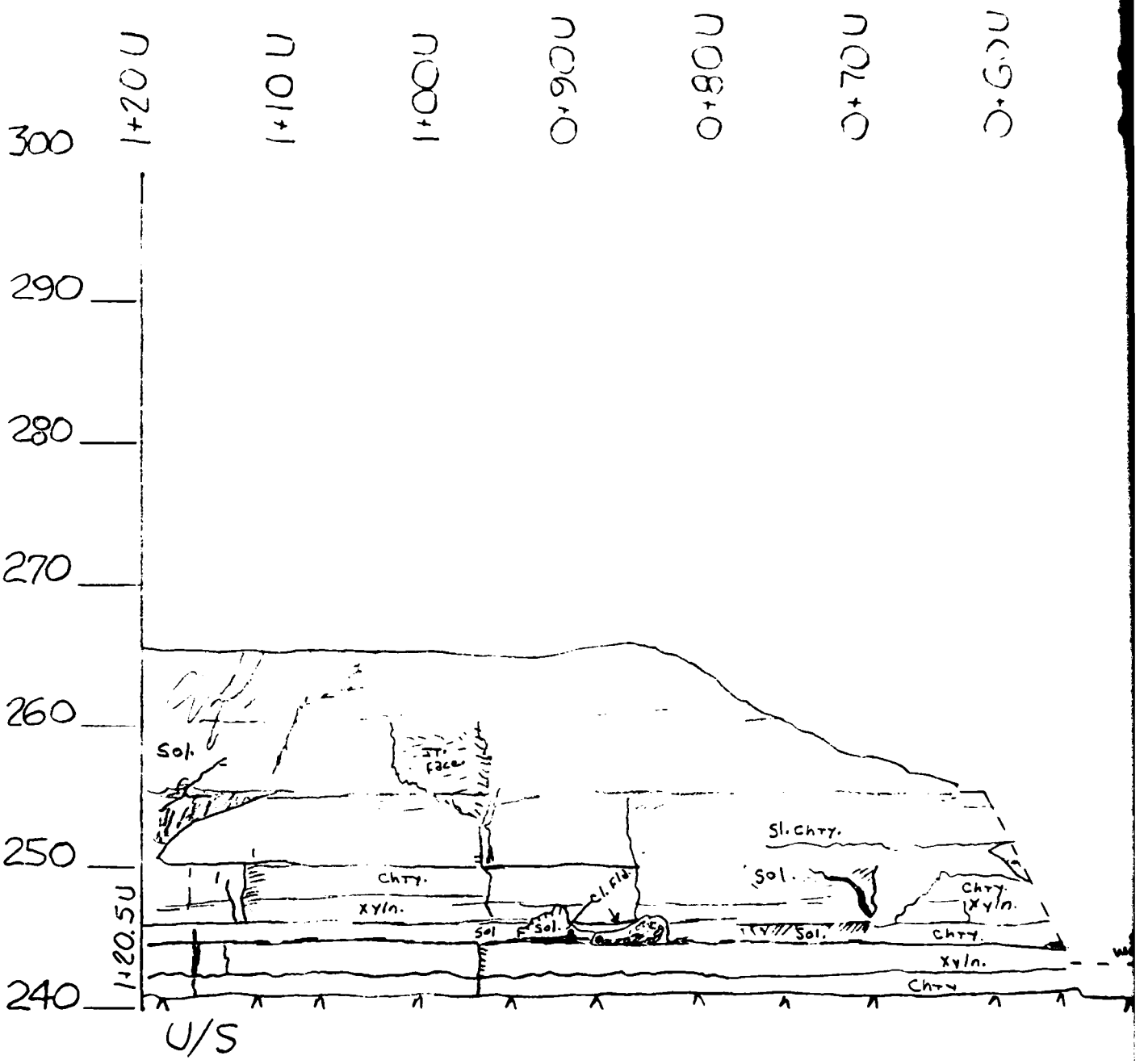
0+90 U

1+00 U

1+10 U

1+20 U

PIER II ILL.



KY. SIDE

PIER II

1

0+70 U

0+60 U

0+50 U

0+40 U

0+30 U

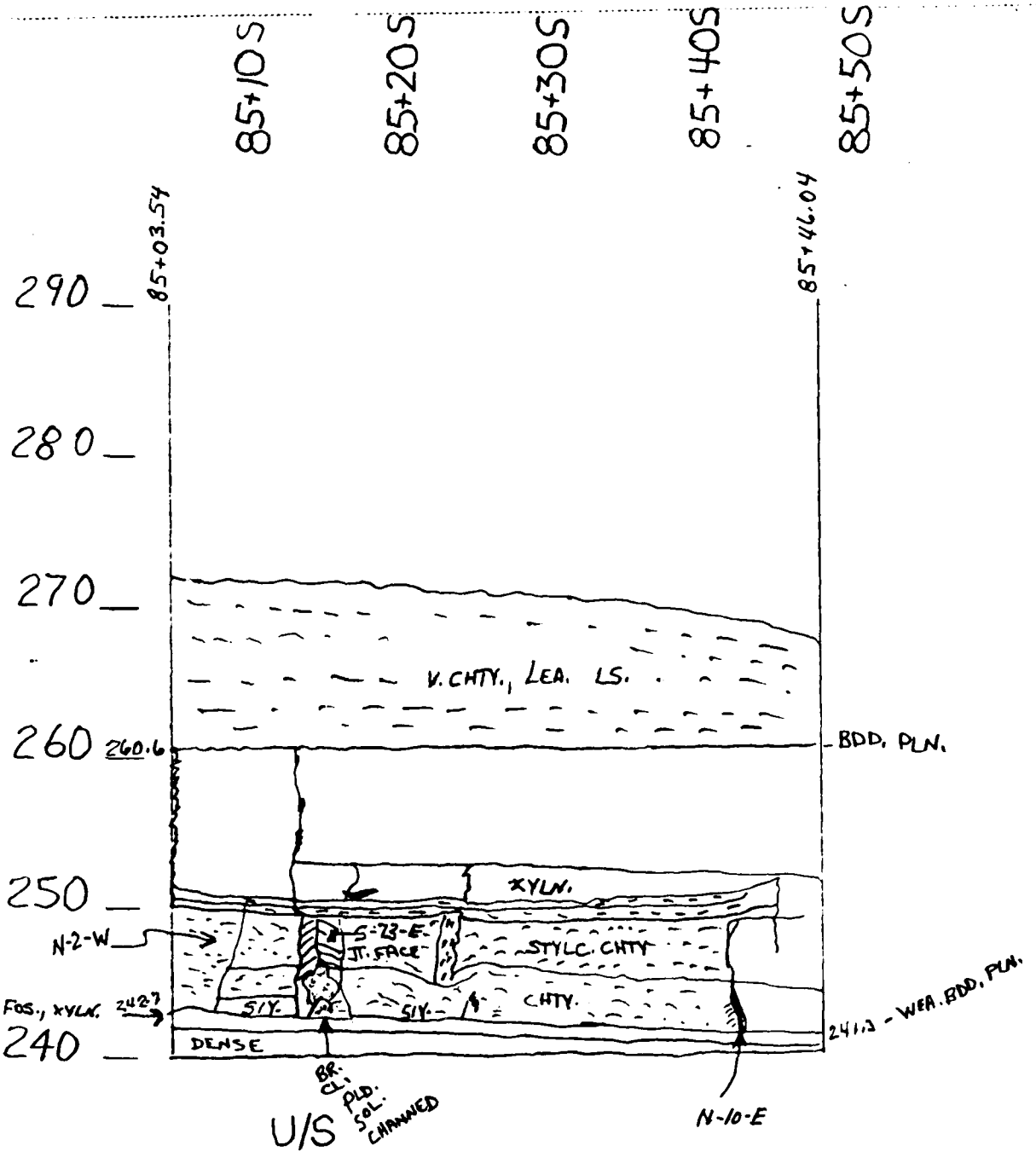
0+20 U

0+10 U

PIER II

BY ..... DATE..... SUBJECT ..... SHEET NO .... OF ....

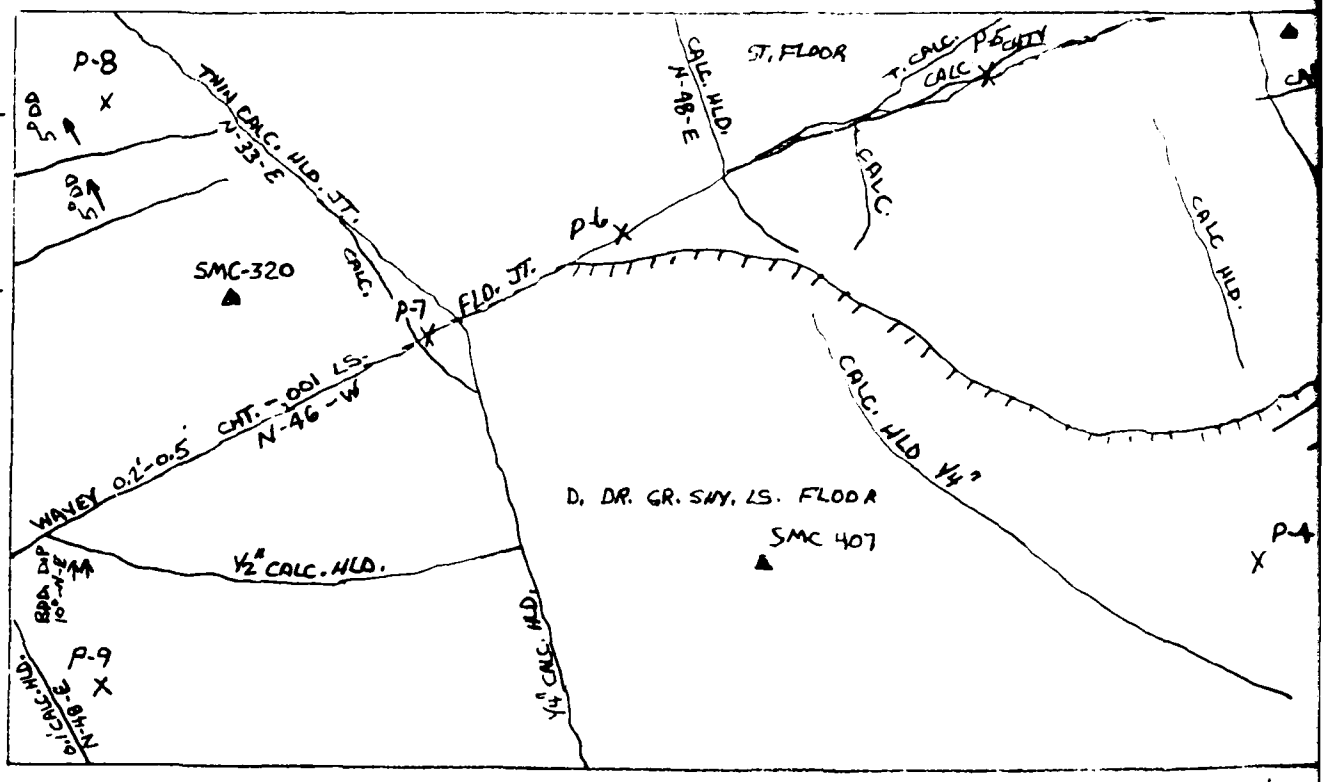
CHKD. BY..... DATE ..... JOB NO. .....



PIER 12

1+30 U
1+20 U
1+10 U
1+00 U
0+90 U
0+80 U
0+70 U
0+60 U

85+50 S
85+40 S
85+30 S
85+20 S
85+10 S
85+00 S



PIER 12

1

0+80U

0+70U

0+60U

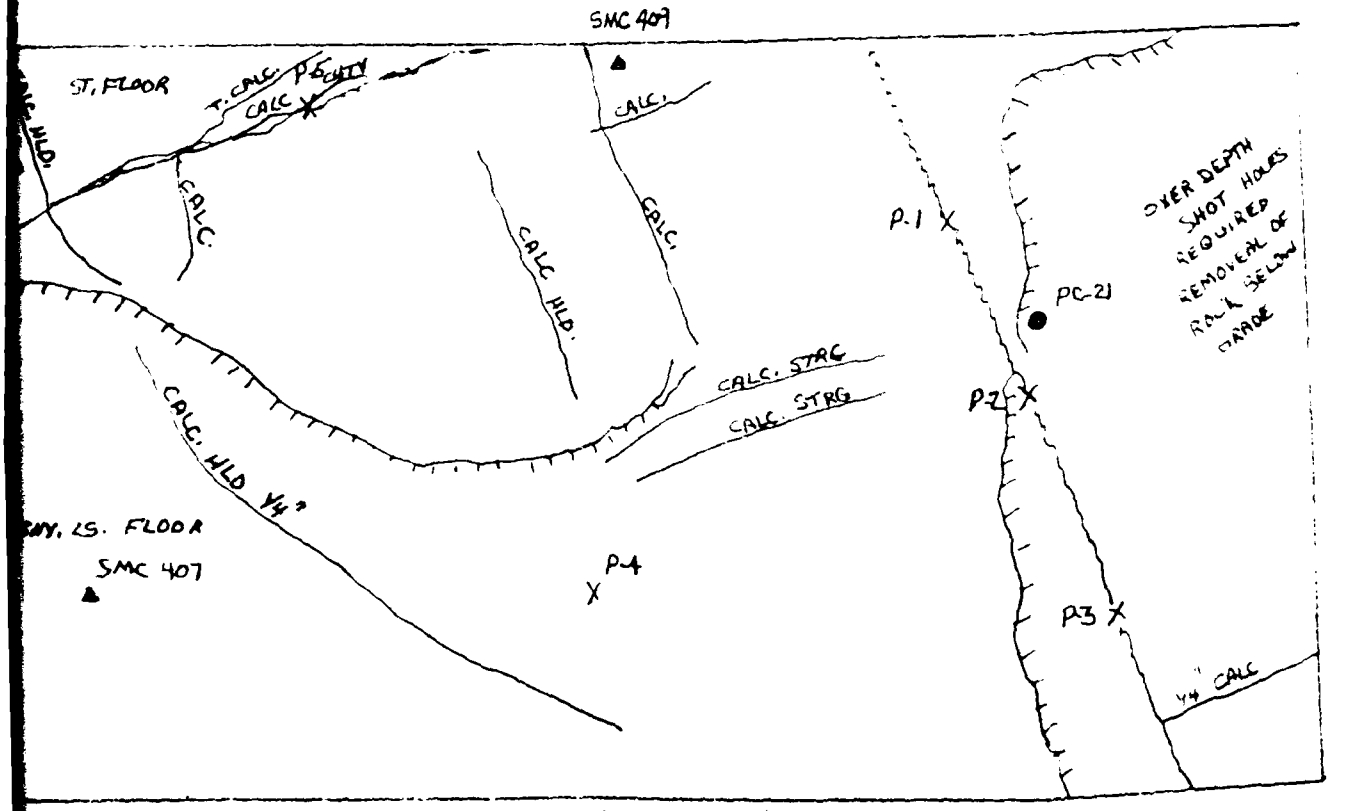
0+50U

0+40U

0+30U

0+20U

0+10U



PIER 12

FOUNDATION FLOOR

0+00U 0+10U 0+20U 0+30U 0+40U 0+50U 0+60U 0+70U

280 —

270 —

260 —

250 —

240 —

ILL SIDE

PIER 12

1

0+60 U
0+70 U
0+80 U
0+90 U
1+00 U
1+10 U
1+20 U
1+27 U
BAY 11 TRENCH
CHTY.
SLY. CHTY.
F. XYLN.
SHTY.
CHTY.
CHTY.
N-40-E JT. FACE
SOL. POCKET
SOL.
SOL.
2427
XYLN. FOSS.
DENSE V.F. XYLN. CHTY.
HGHTY
SOL. BDD. PLN.
U/S

PIER 12

1+20 U

1+10 U

1+00 U

0+90 U

0+80 U

0+70 U

0+60 U

0+50 U

1+27 U

U/S

KY SIDE

PIER 12

1

0+70 U

0+60 U

0+50 U

0+40 L

0+30 L

0+20 L

0+10 L

0+00

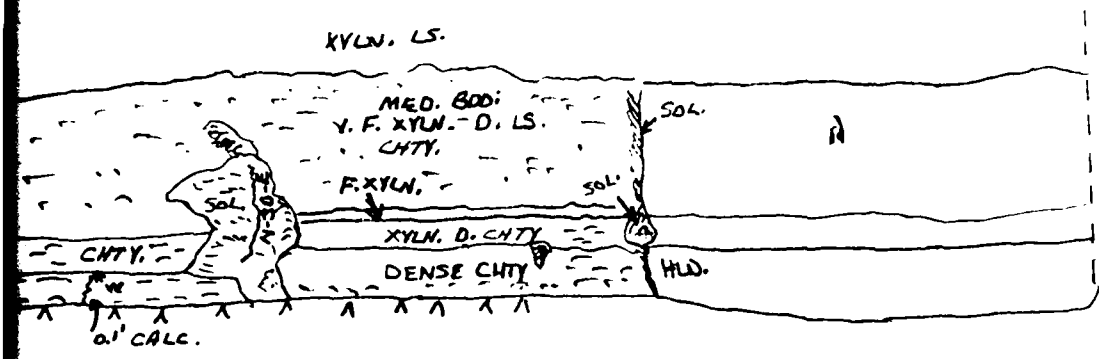
— 280

— 270

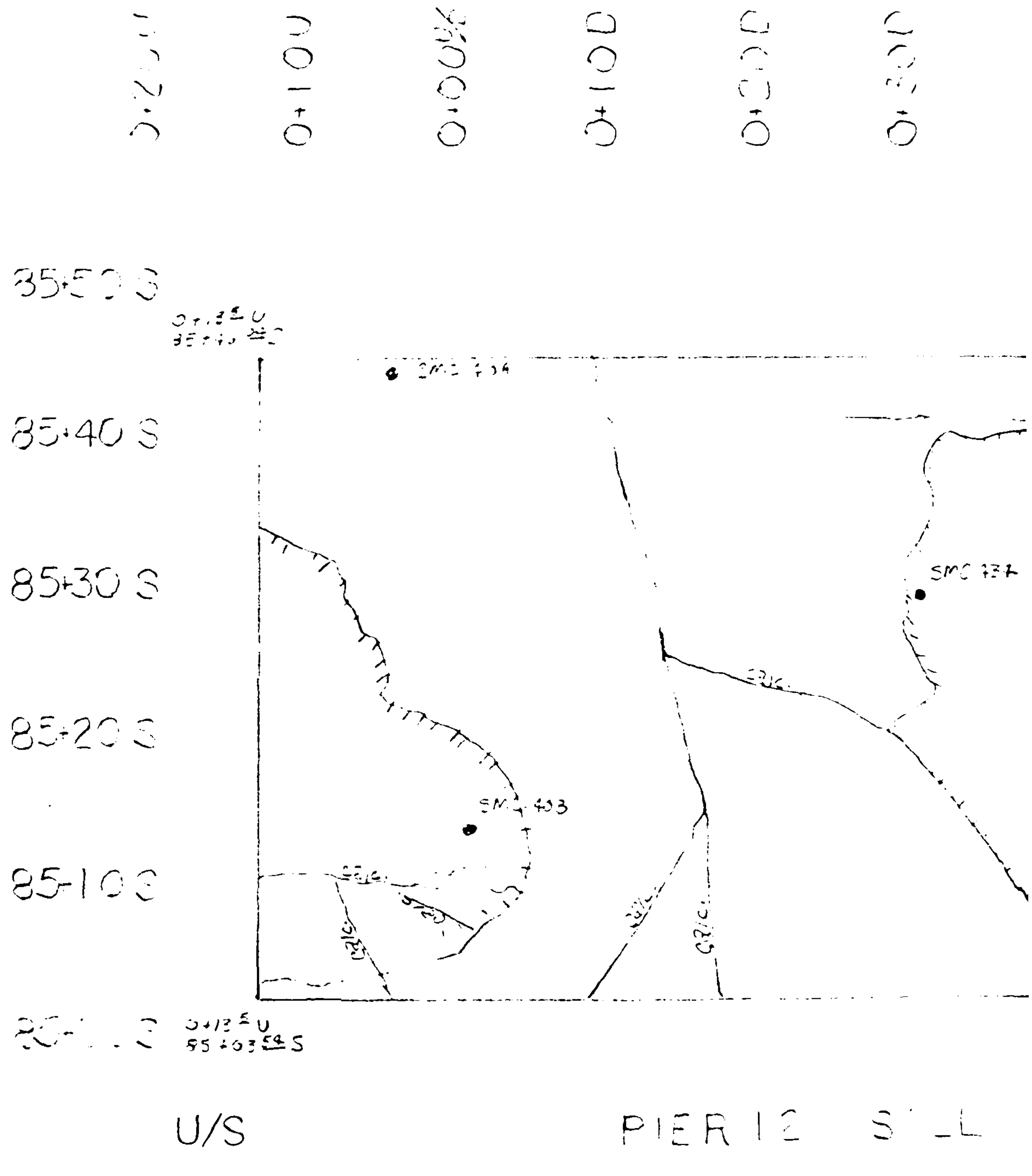
— 260

— 250

— 240



PIER 12



1

0+100

0+200

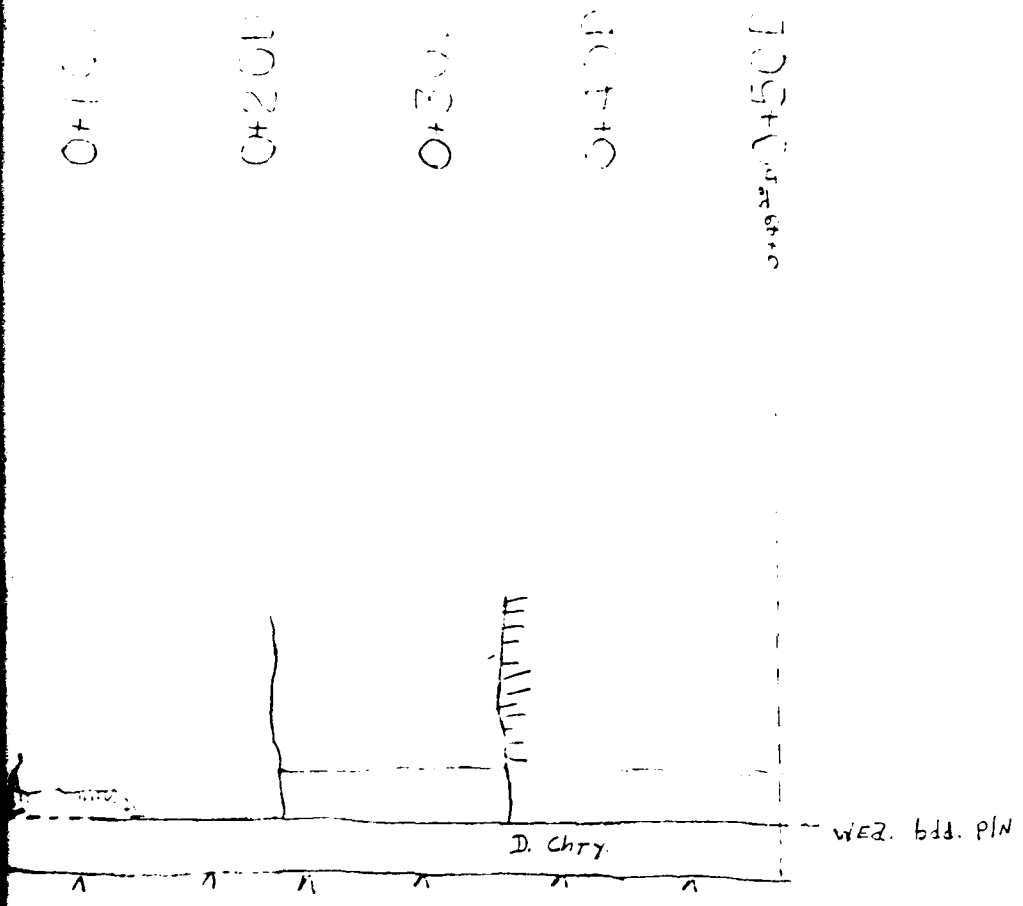
0+300

0+400

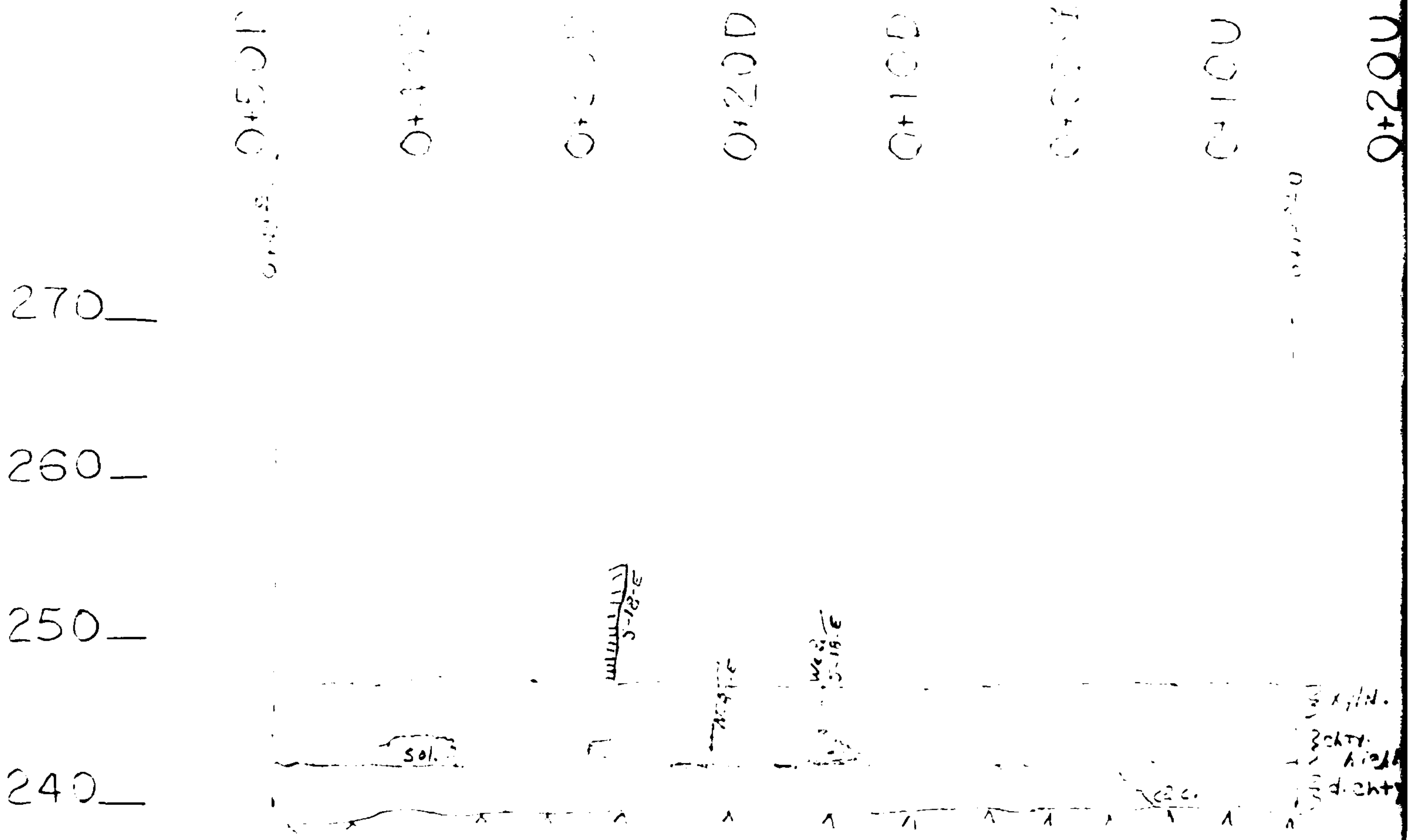
0+500

PIER 12 SILL FOUNDATION

U/S PIER 12 SILL



PIER 12 SILL KY. SIDE



D/S PIER 12 SILL ILL S

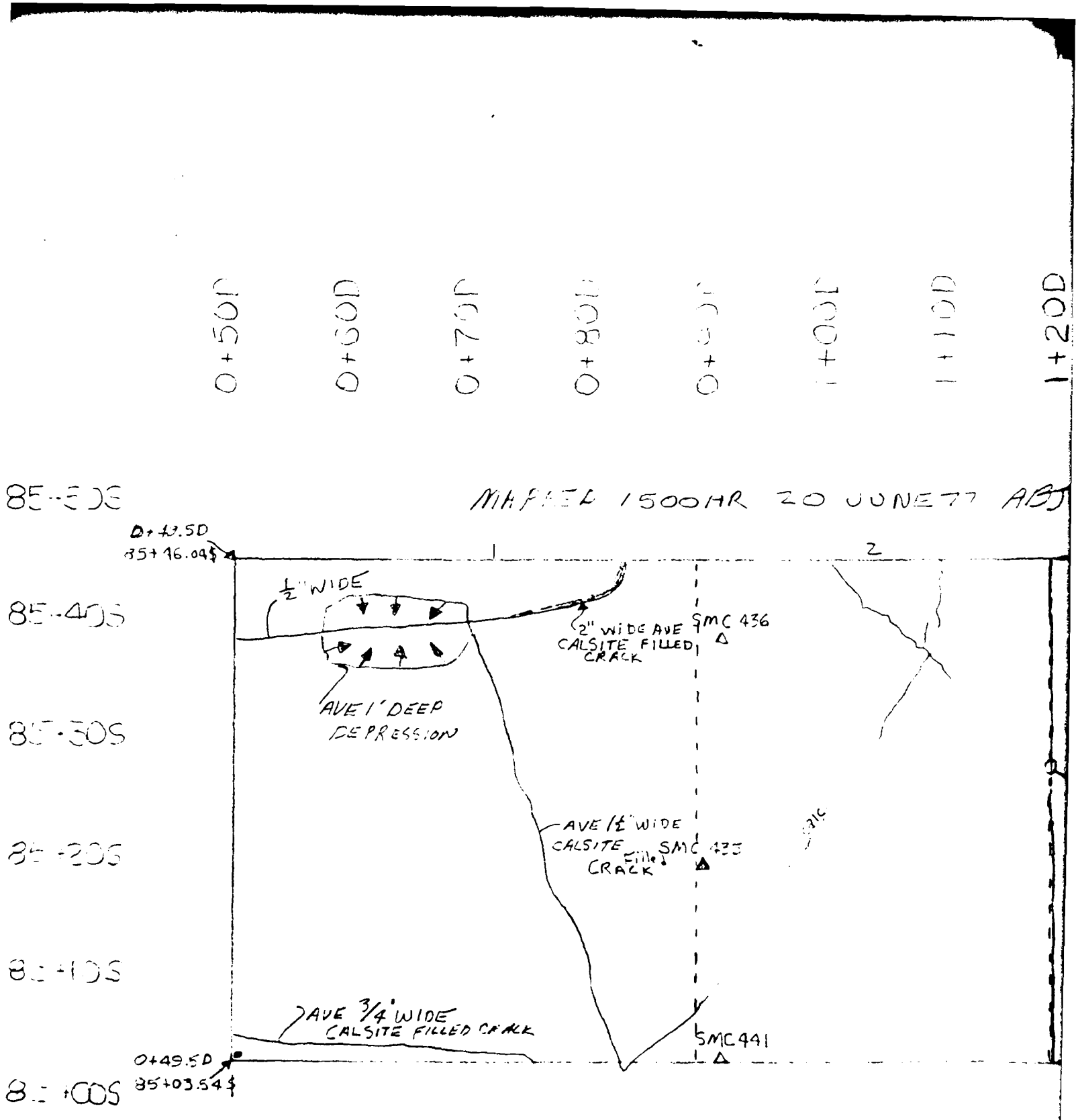
Q+100

Q+110

Q+200

SILL

ILL SIDE


0+50D
0+60D
0+70D
0+80D
0+90D
1+00D
1+10D
1+20D
MARCH 1500HR 20 JUNE 77 ABJ
D+49.5D
85+96.09$
1/2" WIDE
2" WIDE AVE CALSITE FILLED CRACK
SMC 436
AVE 1' DEEP DEPRESSION
AVE 1/2" WIDE CALSITE FILLED CRACK
SMC 435
AVE 3/4" WIDE CALSITE FILLED CRACK
SMC 441
0+49.5D
85+03.54$
U/S
TRAINING WALL-1

± 00D

± 10D

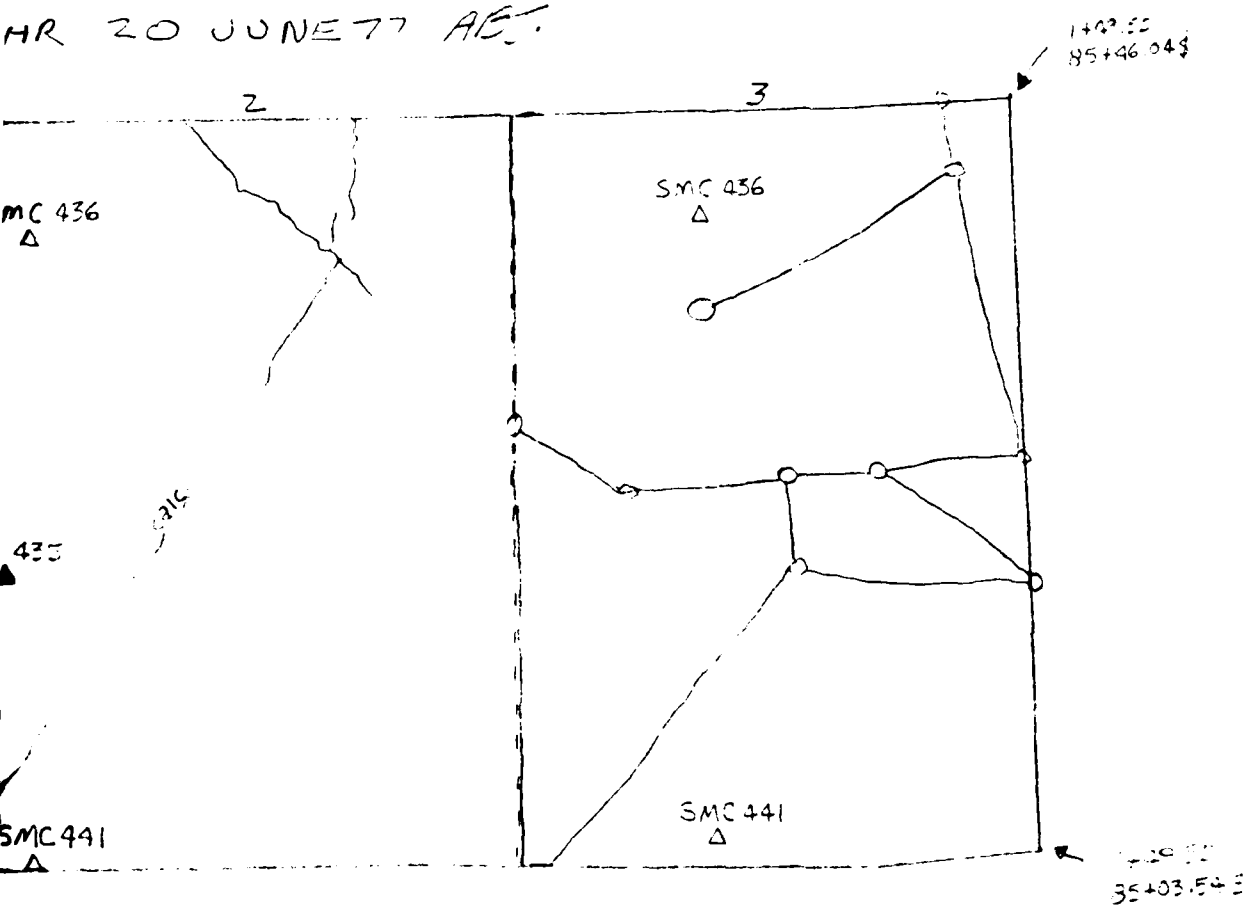
± 20D

± 30D

± 40D

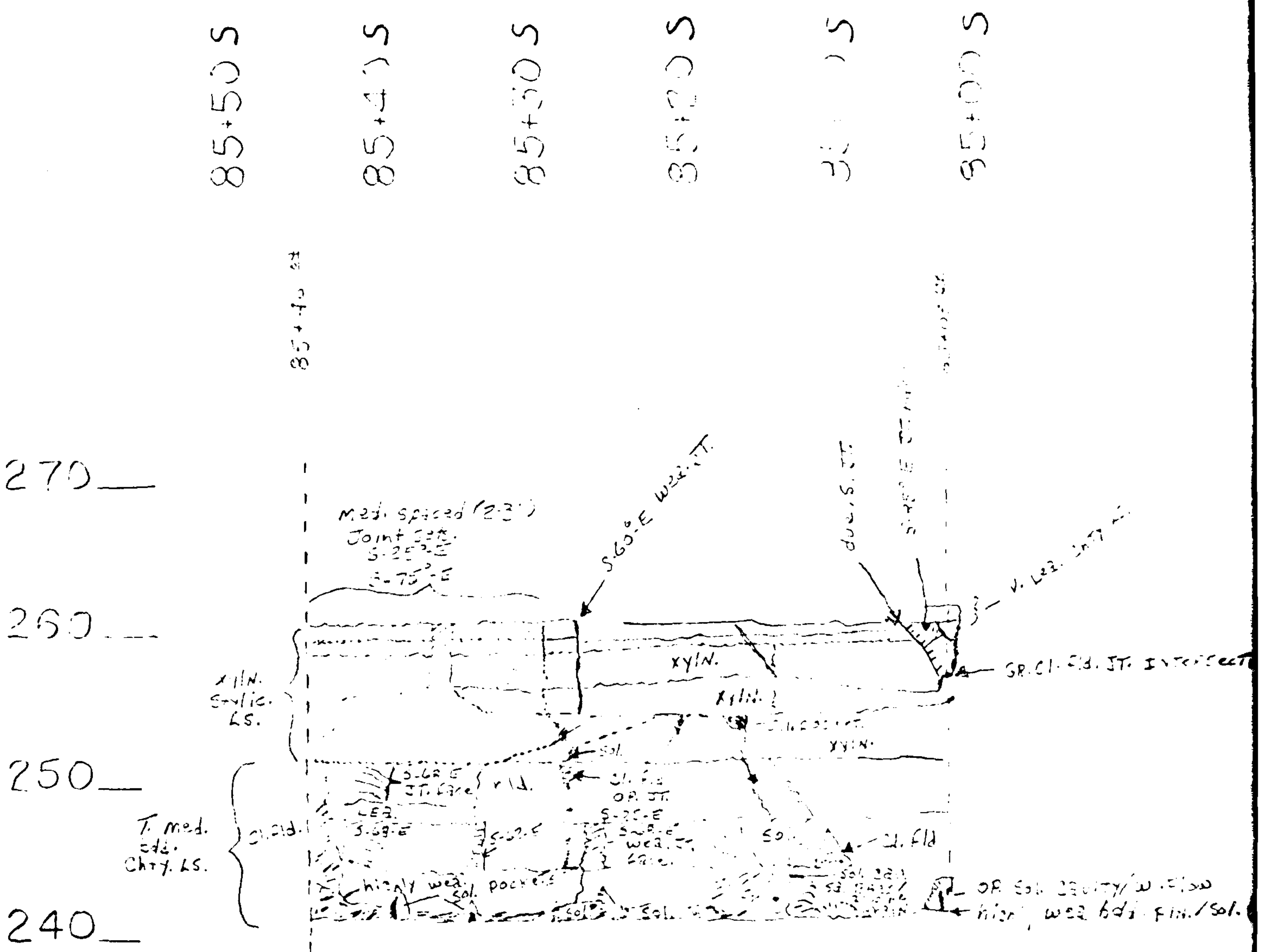
± 50D

HR 20 JUNE 77 AE.



NING WALL-1

FOUNDATION FLOOR


85+50 S
85+40 S
85+30 S
270
260
250
240
Med. spaced (2-3')
Joint set.
S-25°-E
S-75°-E
S-65°-E wea. JT.
xyln.
xyln.
Styl'c.
LS.
T. med.
bdd.
Chty. LS.
highly wea.
sol. pockets
GR. Cl. Fld. JT. INTERSECT
OR. Sol. cavity/ w. flow

D/S EN[illegible]

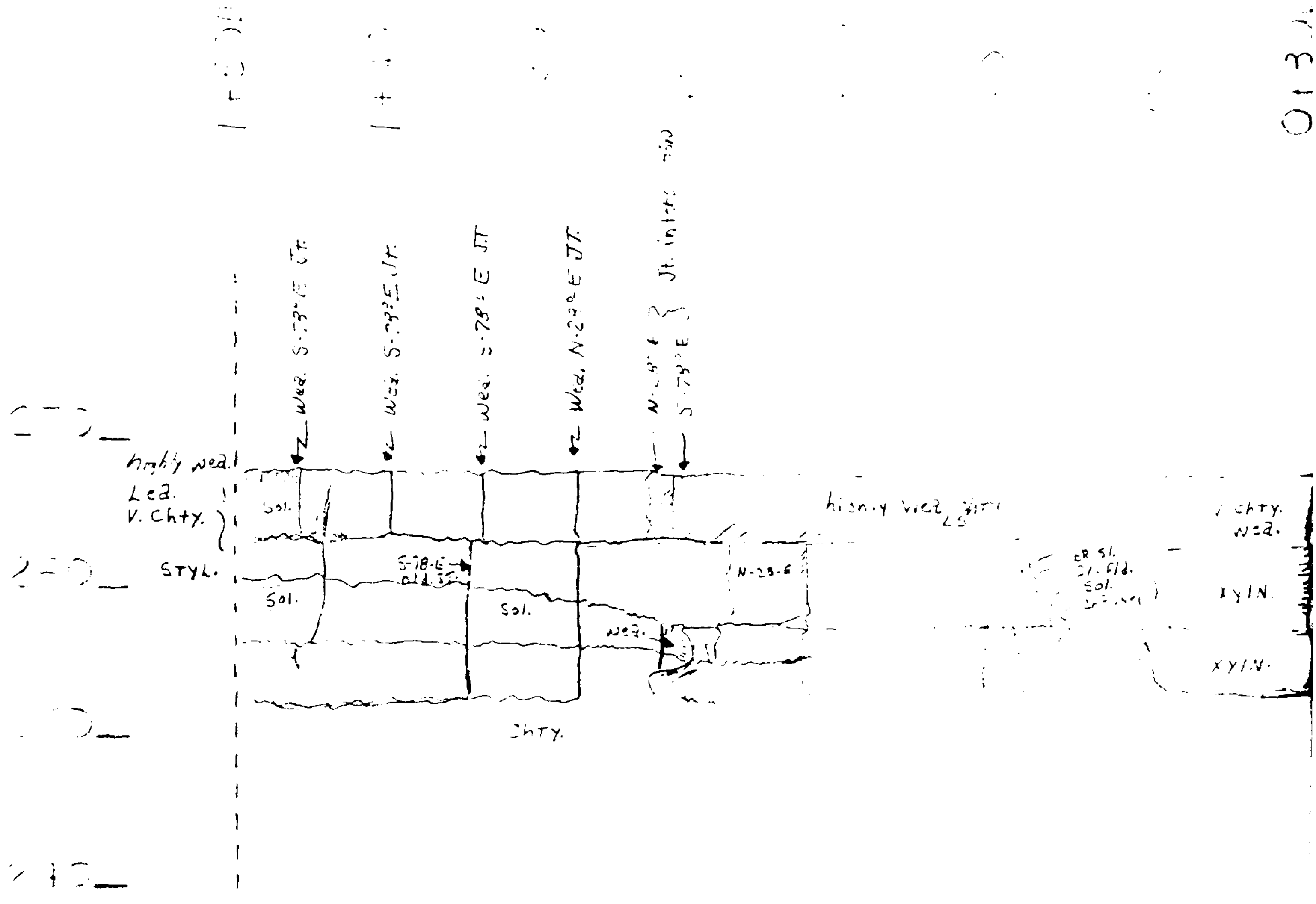
TRAI[illegible] - W[illegible]

85+20 S

85+00 S

D/S END

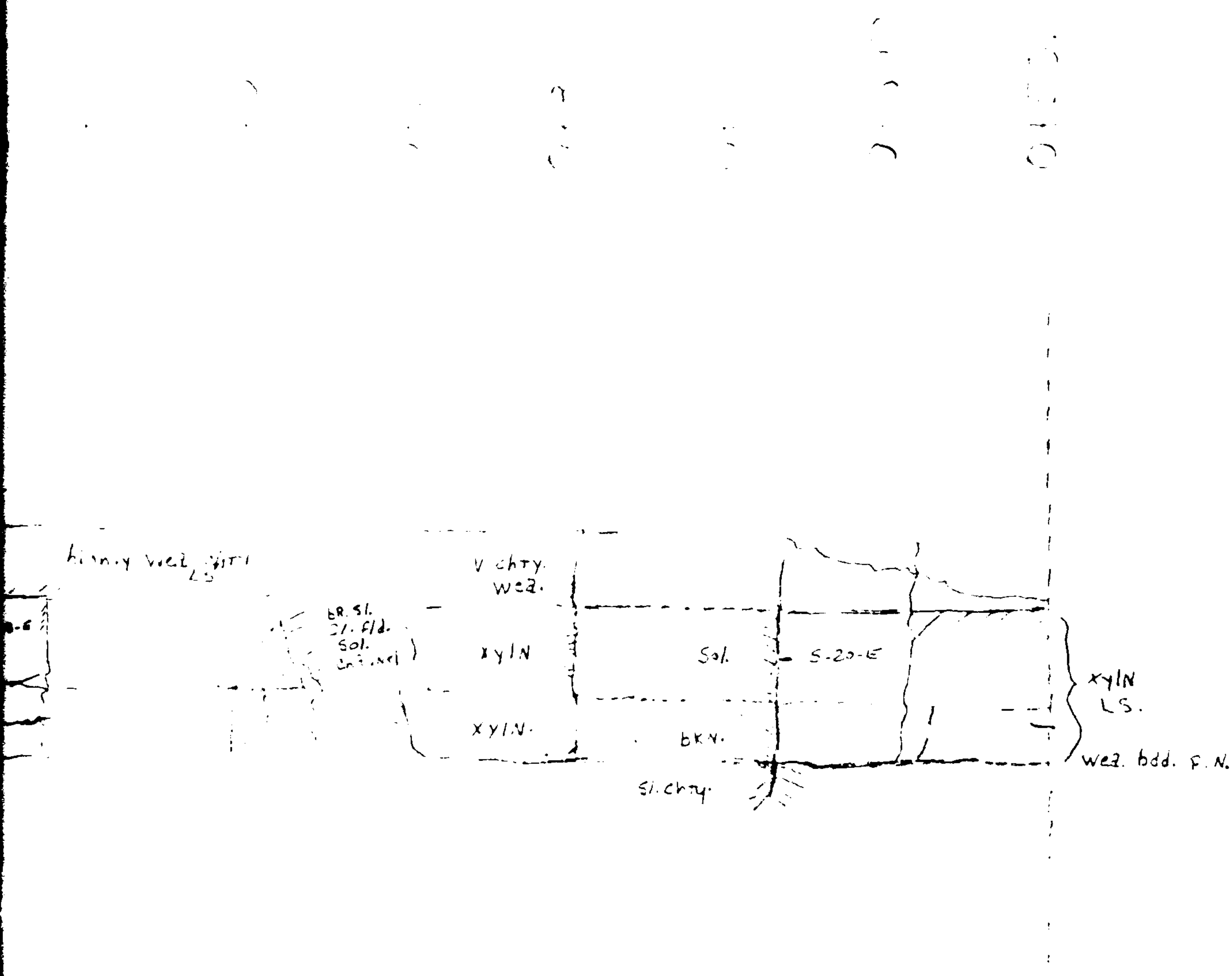
AIII i - WI --



highly wea.
Led.
V. Chty.
STYL.
Sol.
Sol.
Sol.
Wea. S-73°E Jt.
Wea. S-73°E Jt.
Wea. S-78°E Jt.
Wea. N-29°E Jt.
S-73°E
Jt. intsx.
S-78-E Old Jt.
N-29-E
wea.
Chty.
highly wea.
chty. wea.
XYLN.
XYLN.

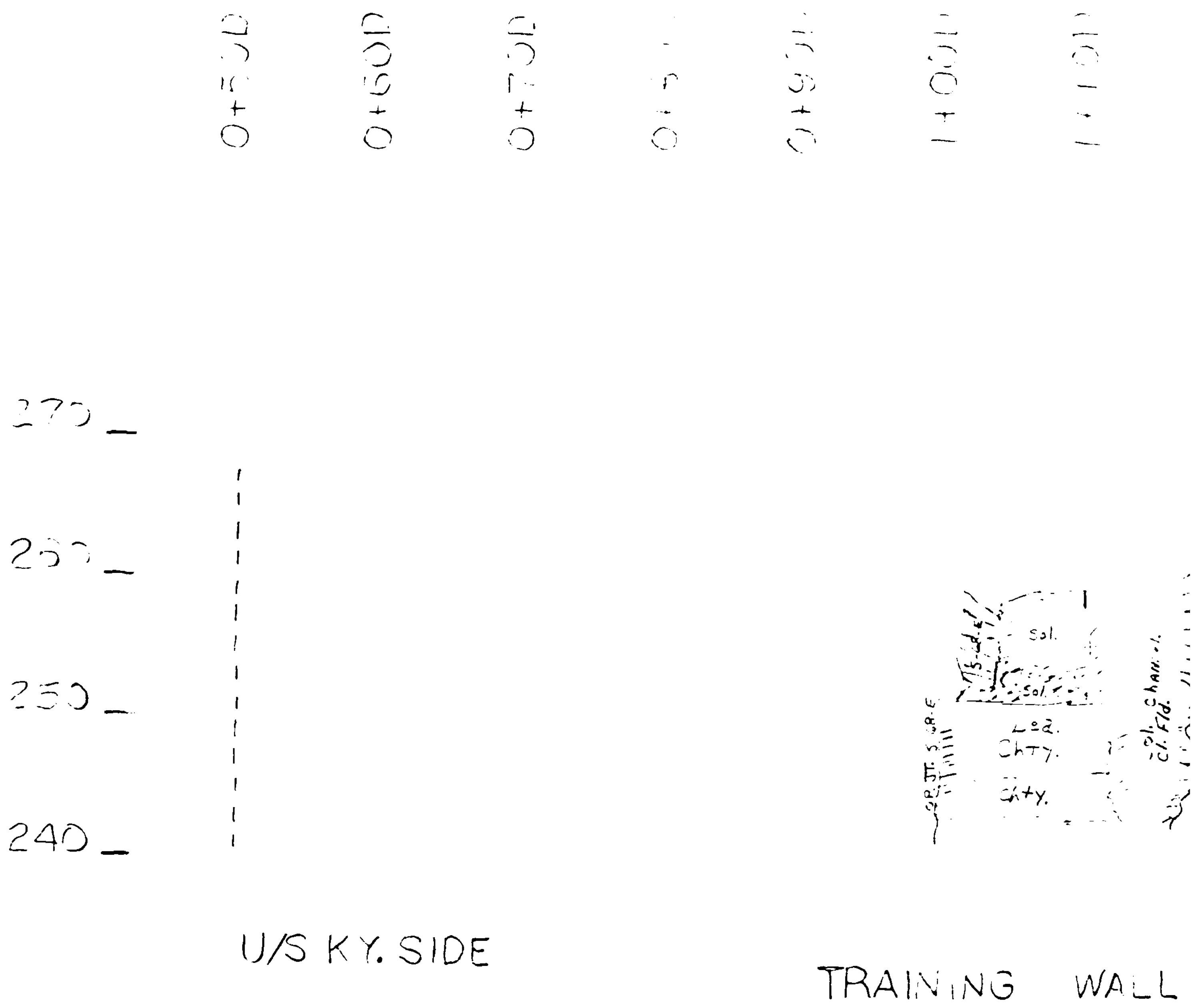
T— NING W

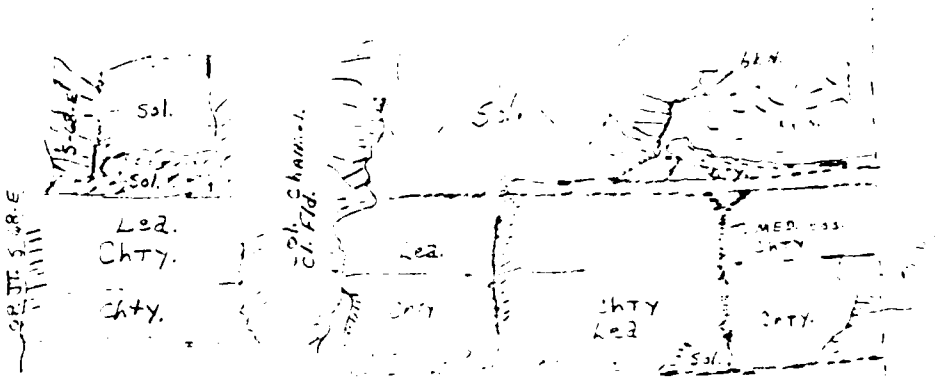
1


v. chty. wea.
br. sl. sl. fld. sol.
xylN
Sol.
S-20-E
xylN.
bkn.
sl. chty.
xylN LS.
wea. bdd. F. N.

T-- NING WALL.

2


0+50
0+60
0+70
1+00
240
250
Sol.
Sol.
Chty.
Chty.
U/S KY. SIDE
TRAINING WALL

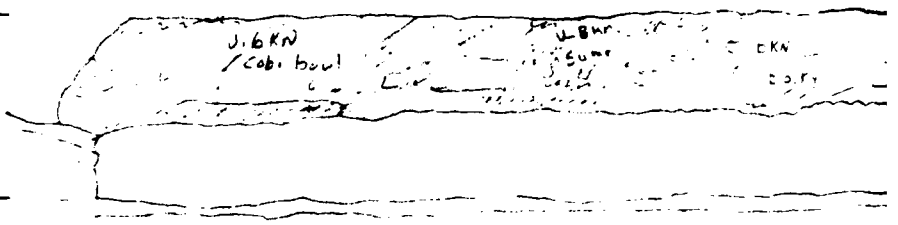


TRAINING WALL

ELEV.
260_

D/S
PROFILE

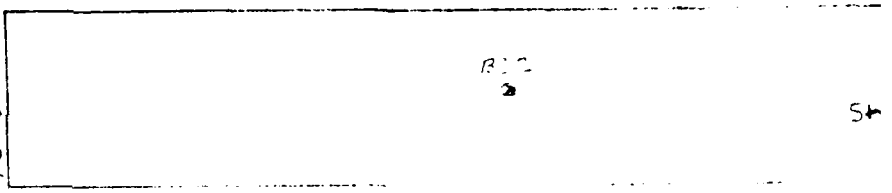
250_

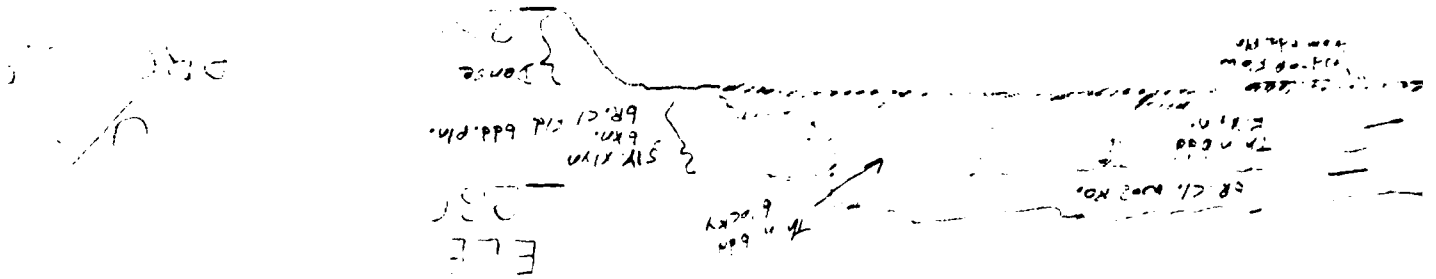


240_

PIER 2

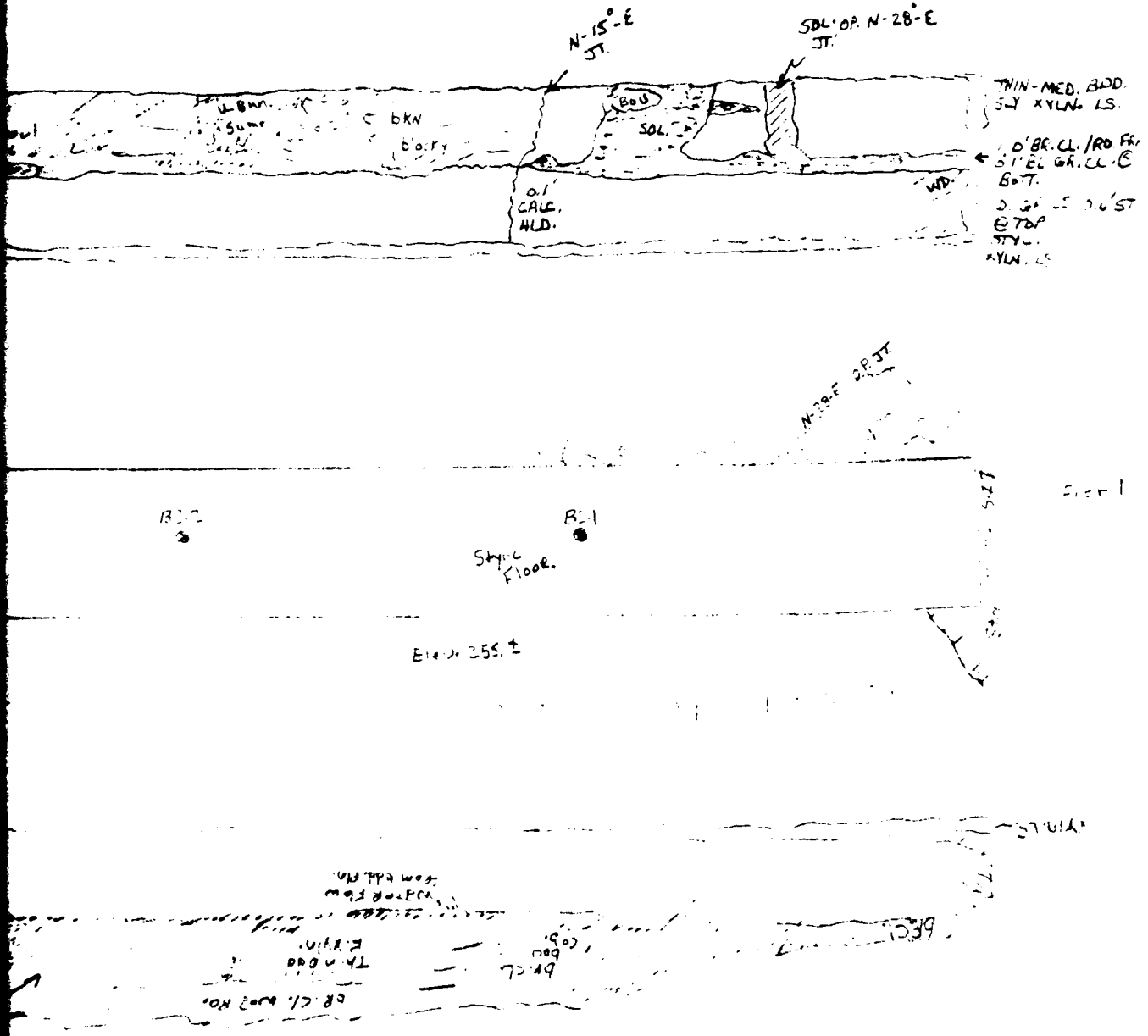
PLAN
VIEW





BAY NO. 1 CUT

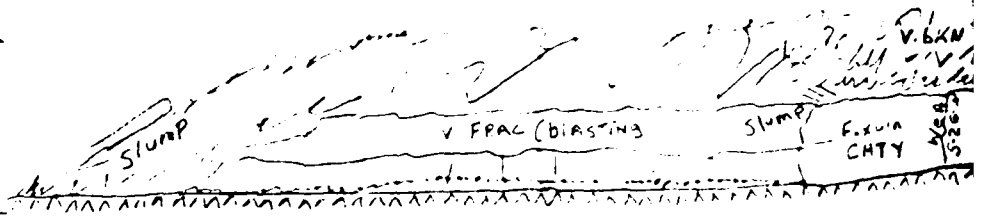
1



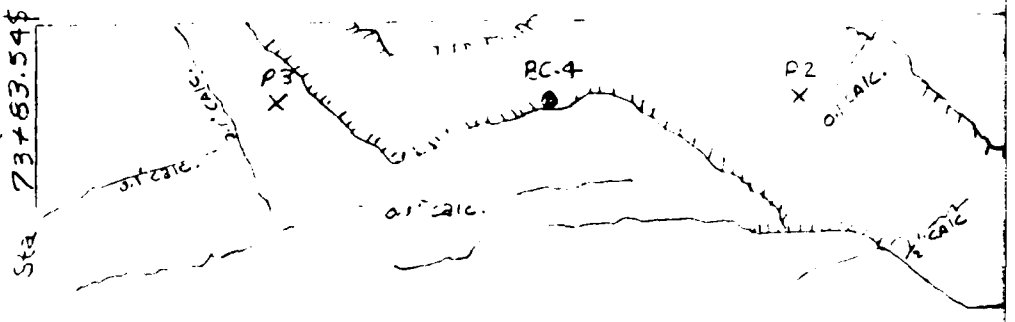
NO. 1 CUT-OFF TRENCH

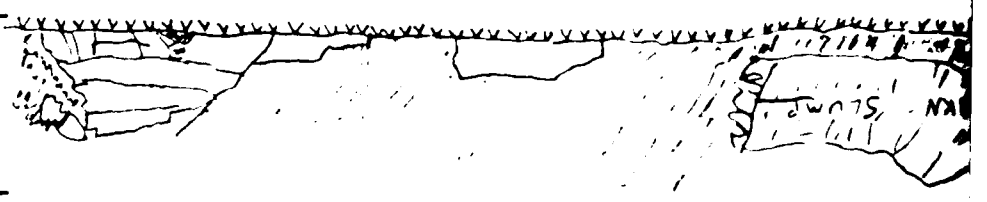
ELEV.
250

D/S
PROFILE



Pier 3 PLAN VIEW



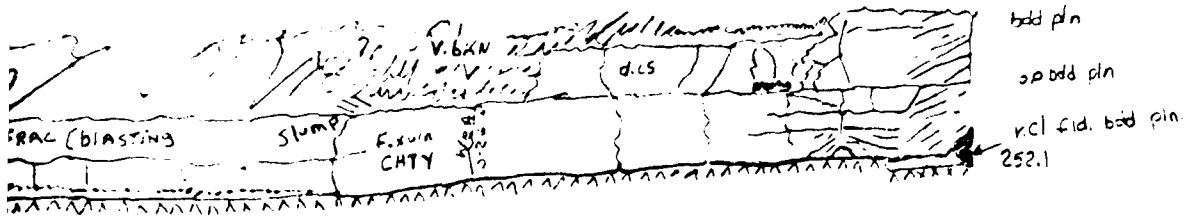


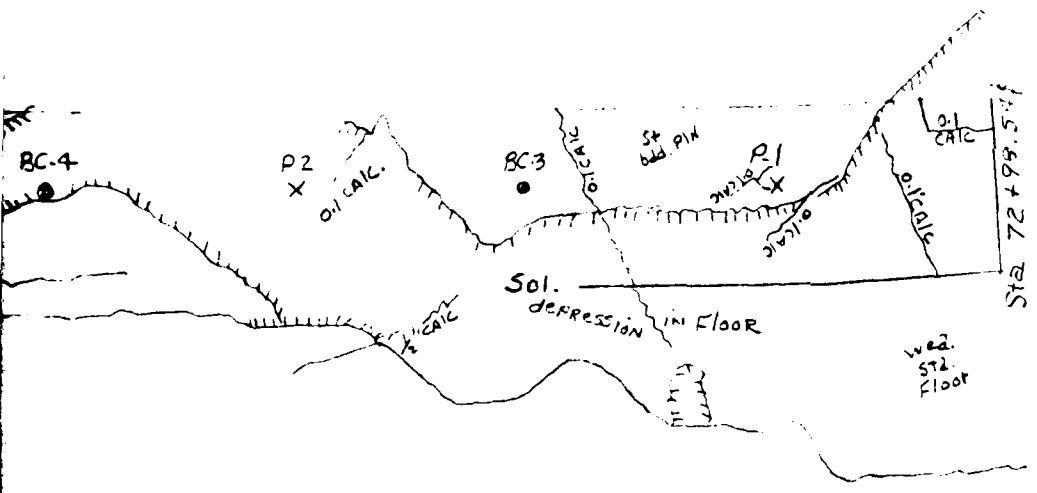
U/S
PROFILE

260
ELEV

FOUNDING ELEV 250

BAY NO. 2 CUTOFF

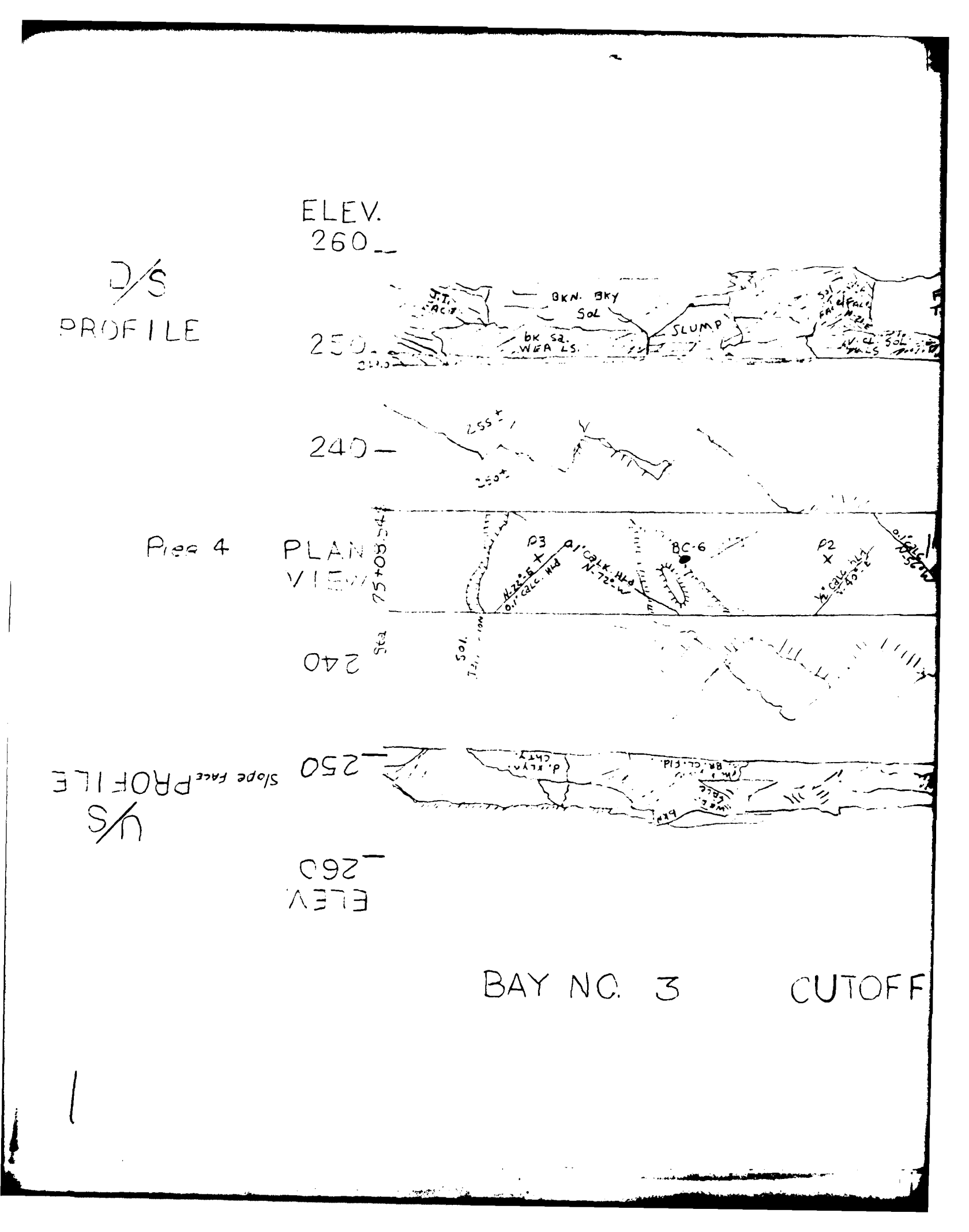


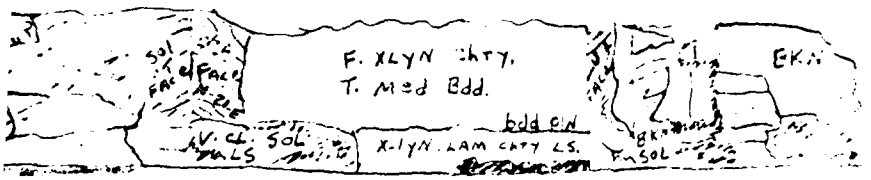


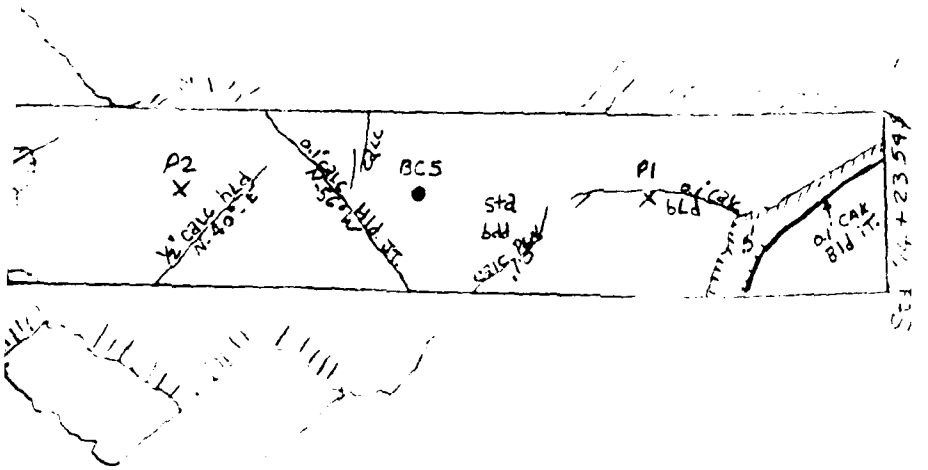
Pier 2

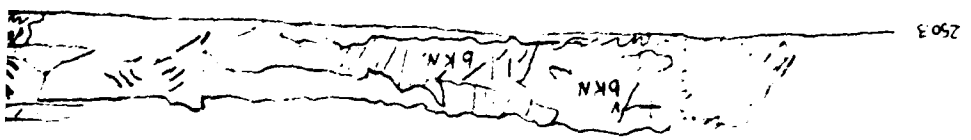
2 CUTOFF TRENCH

DATE 1 DEC 1976

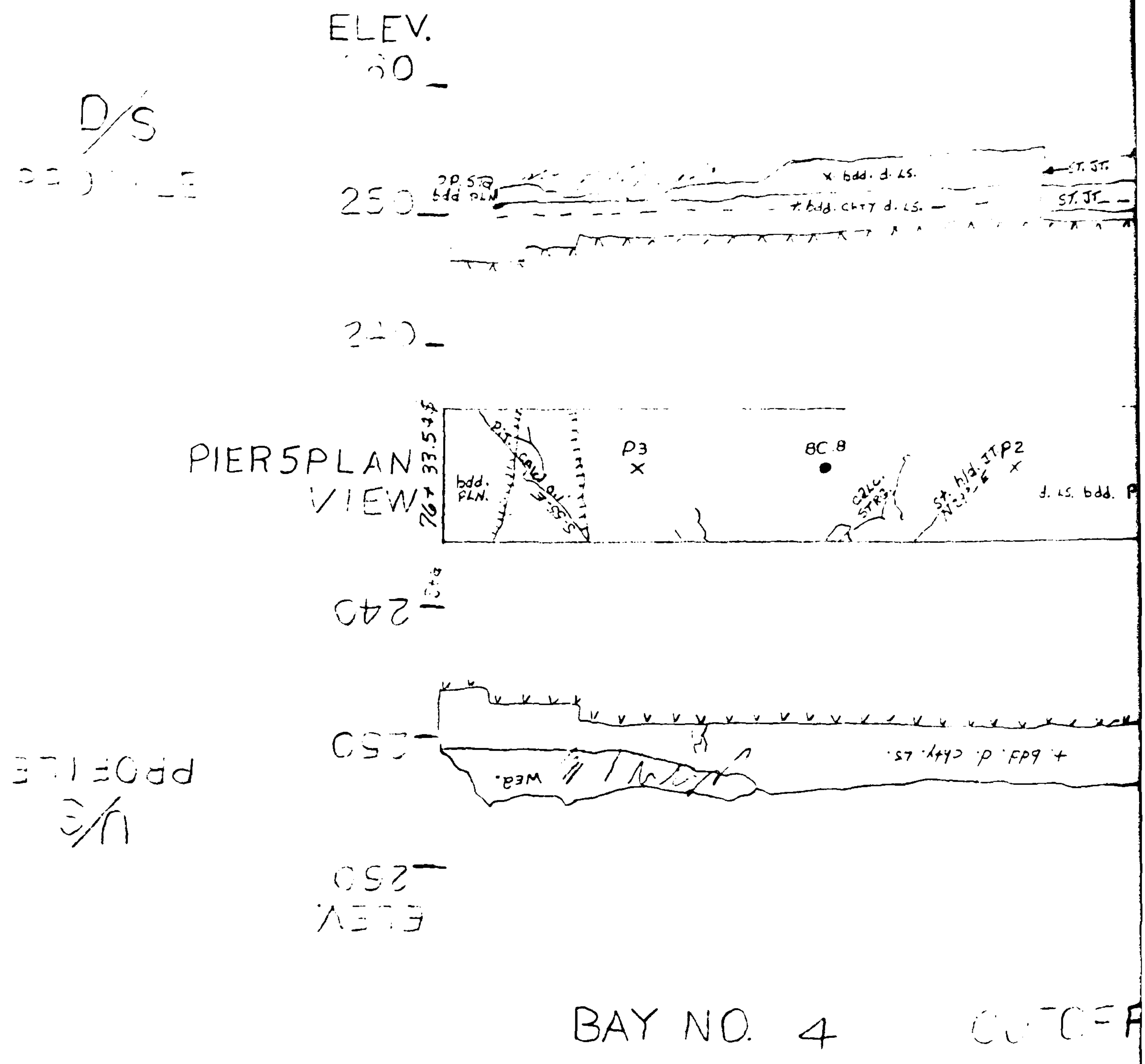

ELEV.
260
D/S
PROFILE
250
240
BKN. BKY
SOL
SLUMP
BK SD.
WEA LS.
255±
250±
Plate 4
PLAN
VIEW
75+00 Sta
P3
P2
BC-6
240
250
Slope Face PROFILE
U/S
ELEV
260
BAY NO. 3
CUTOFF



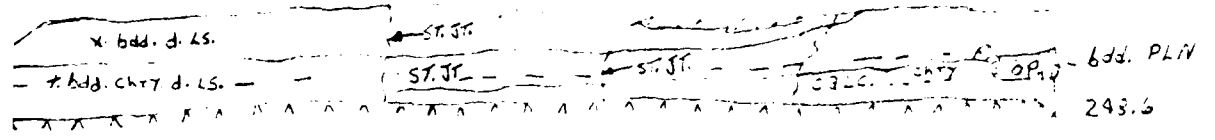


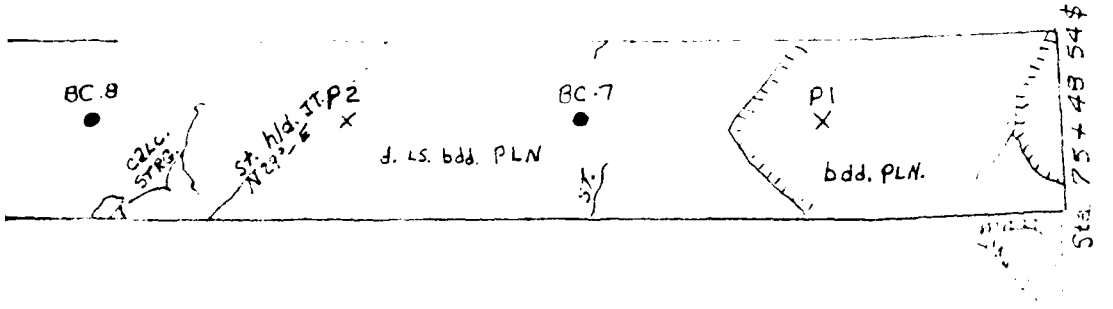


CUTOFF TRENCH

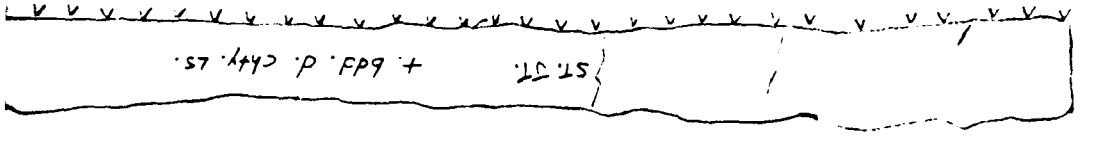


BAY NO. 4 CUTOFF

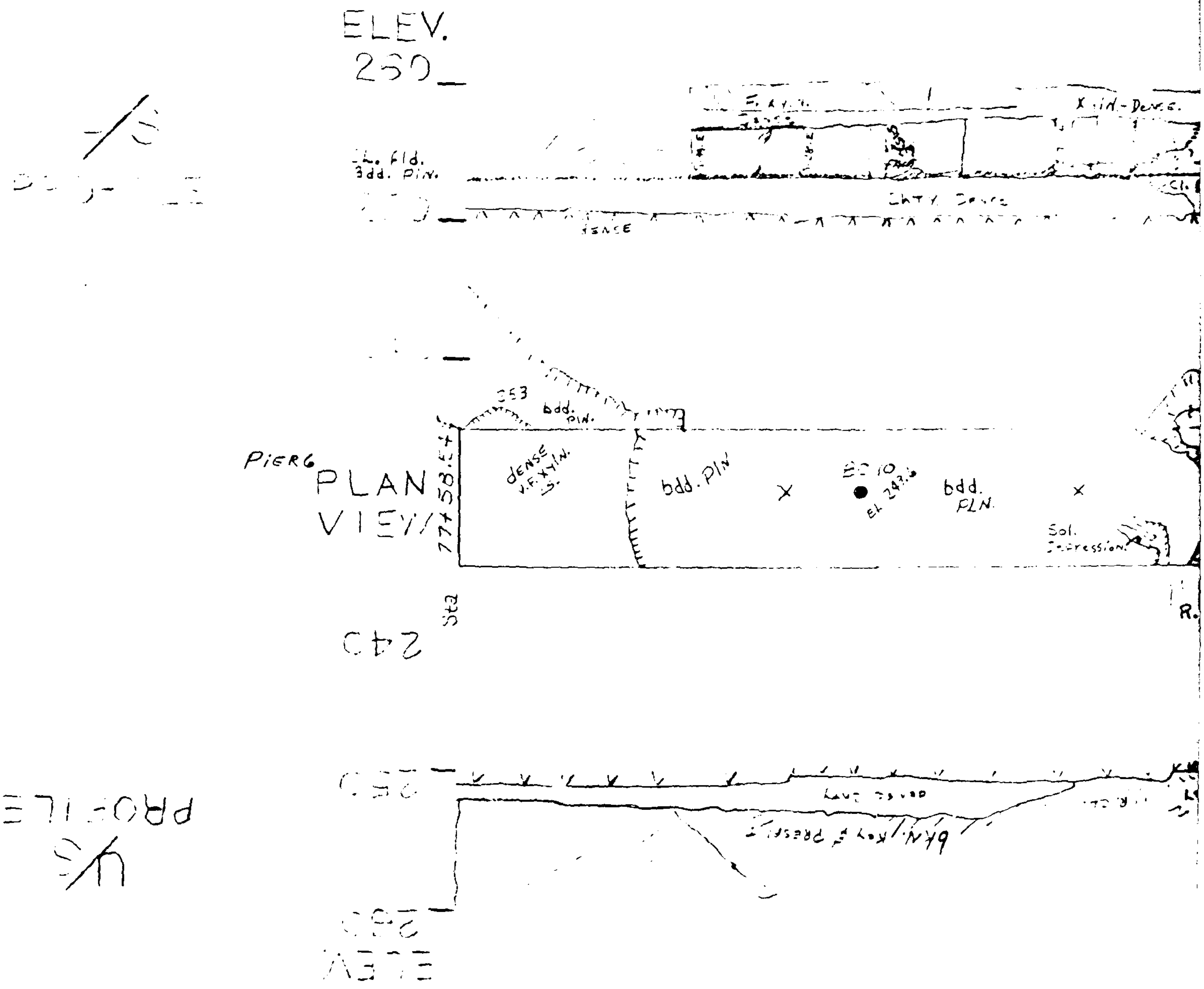




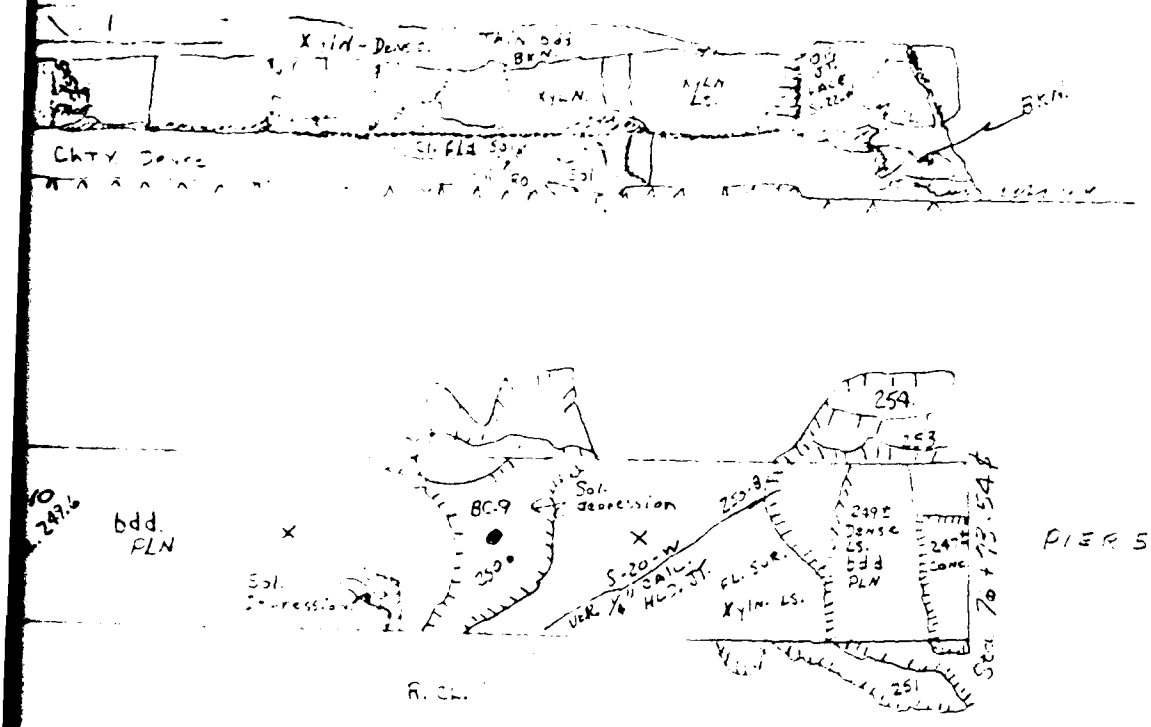
Pier 4



4 CUTOFF TRENCH



BAY NO. 5 CUTOFF

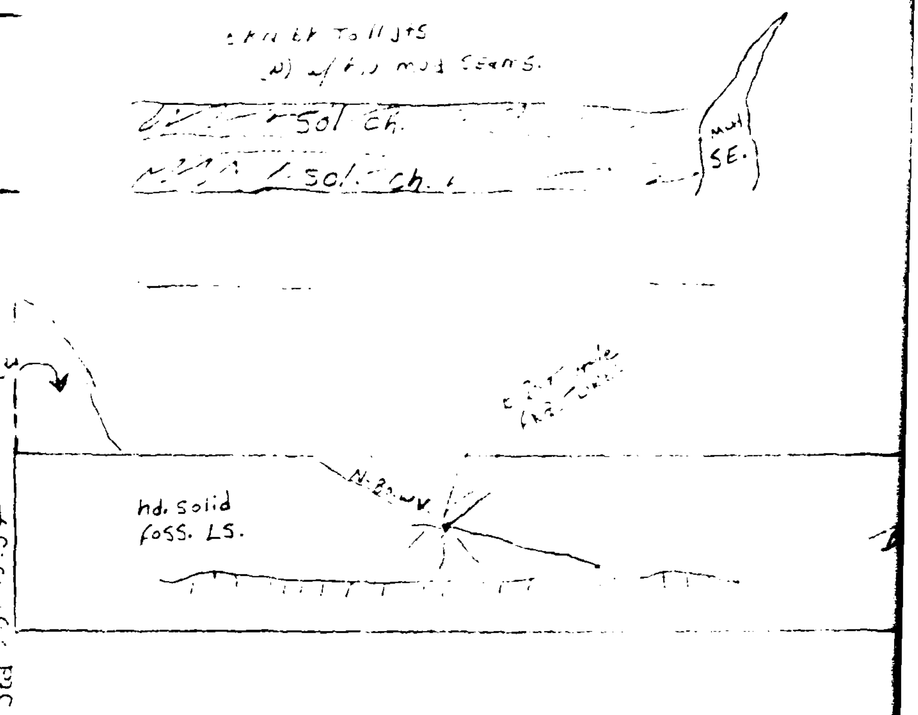


CUTOFF TRENCH

D/S PROFILE

ELEV.
260

250



PLAN VIEW

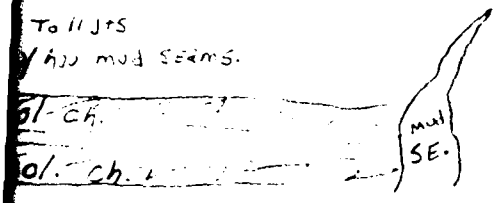
250

U/S PROFILE

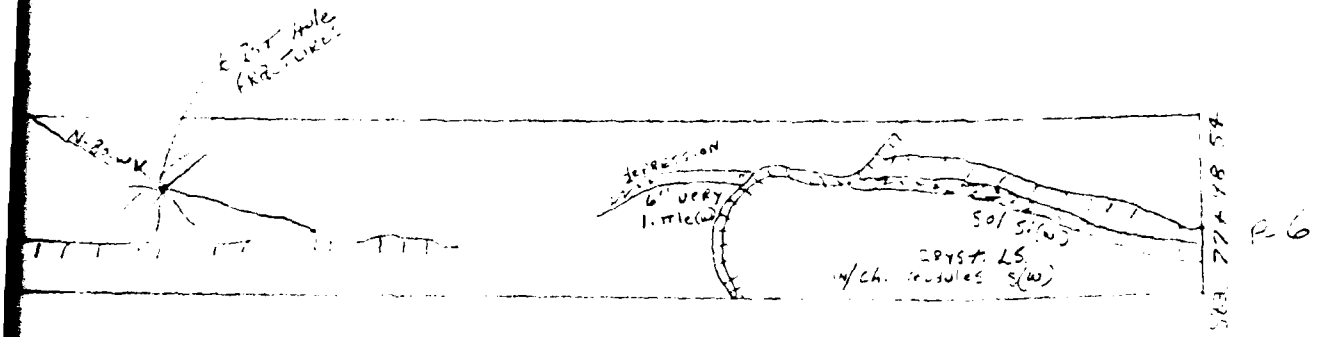
260
ELEV.

BAY NO. 6

CUTO

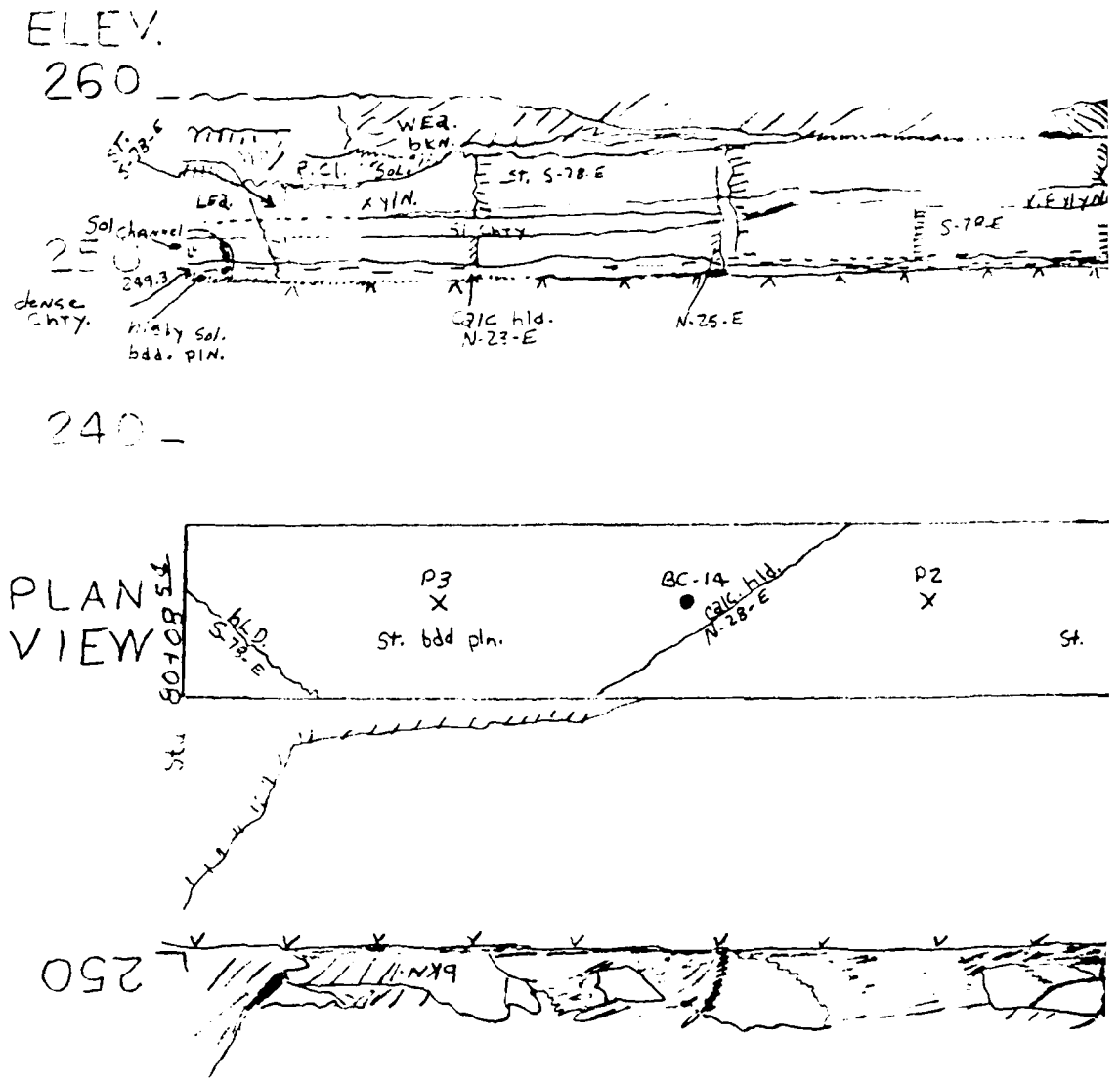


6KN. both HOR & VERT. ON JTS.
MOST BREAKS APPEAR TO TRAIL
JOINTS IN BOTTOM FROM FRESH
BRK. BACK 6' AT BOTTOM TO 4'
@ 260.0 APPEARS TO be QUICKSHOT



Scot Rock on 3-1 Slope

NO 6 CUTOFF TRENCH



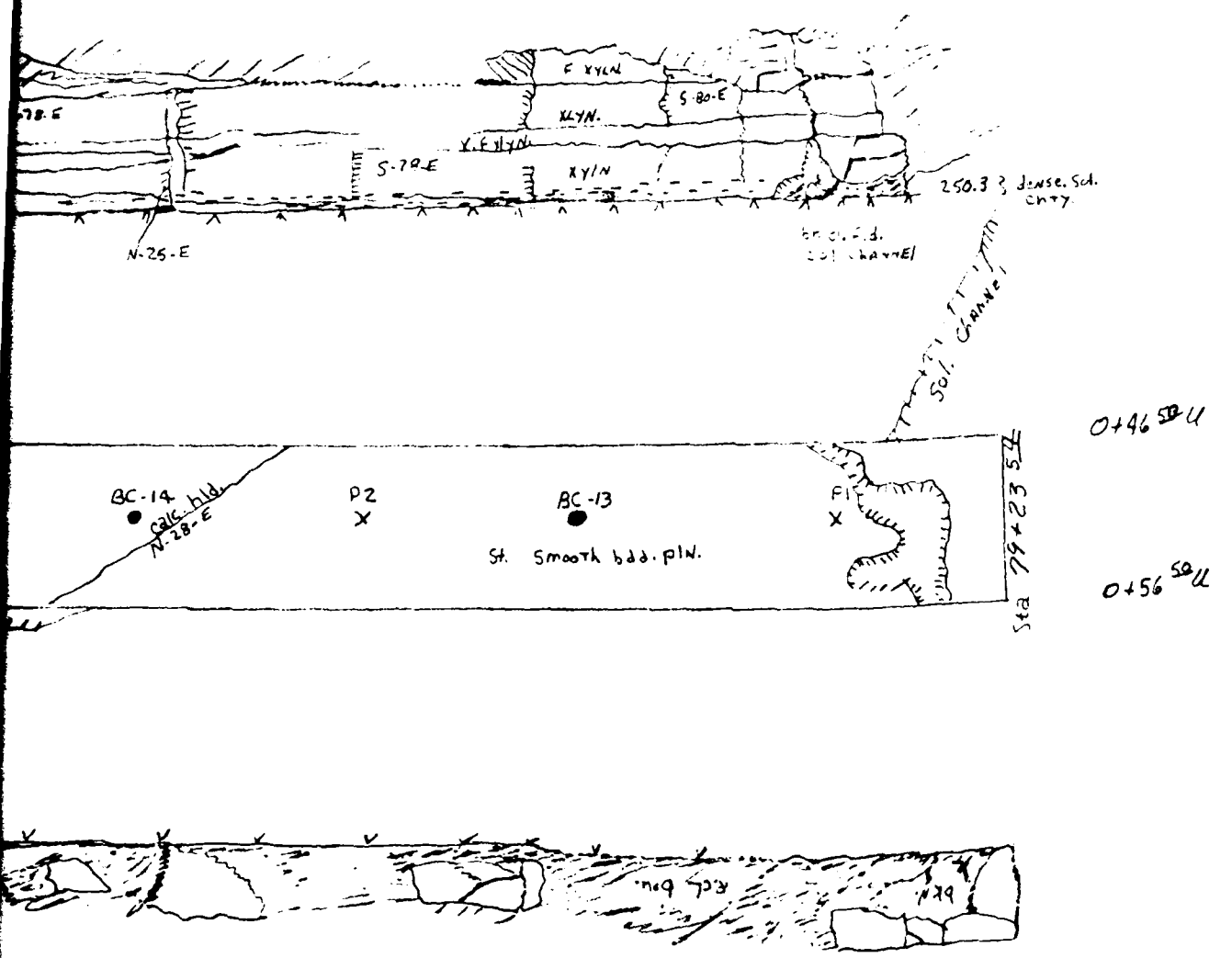
PROFILE

PROFILE

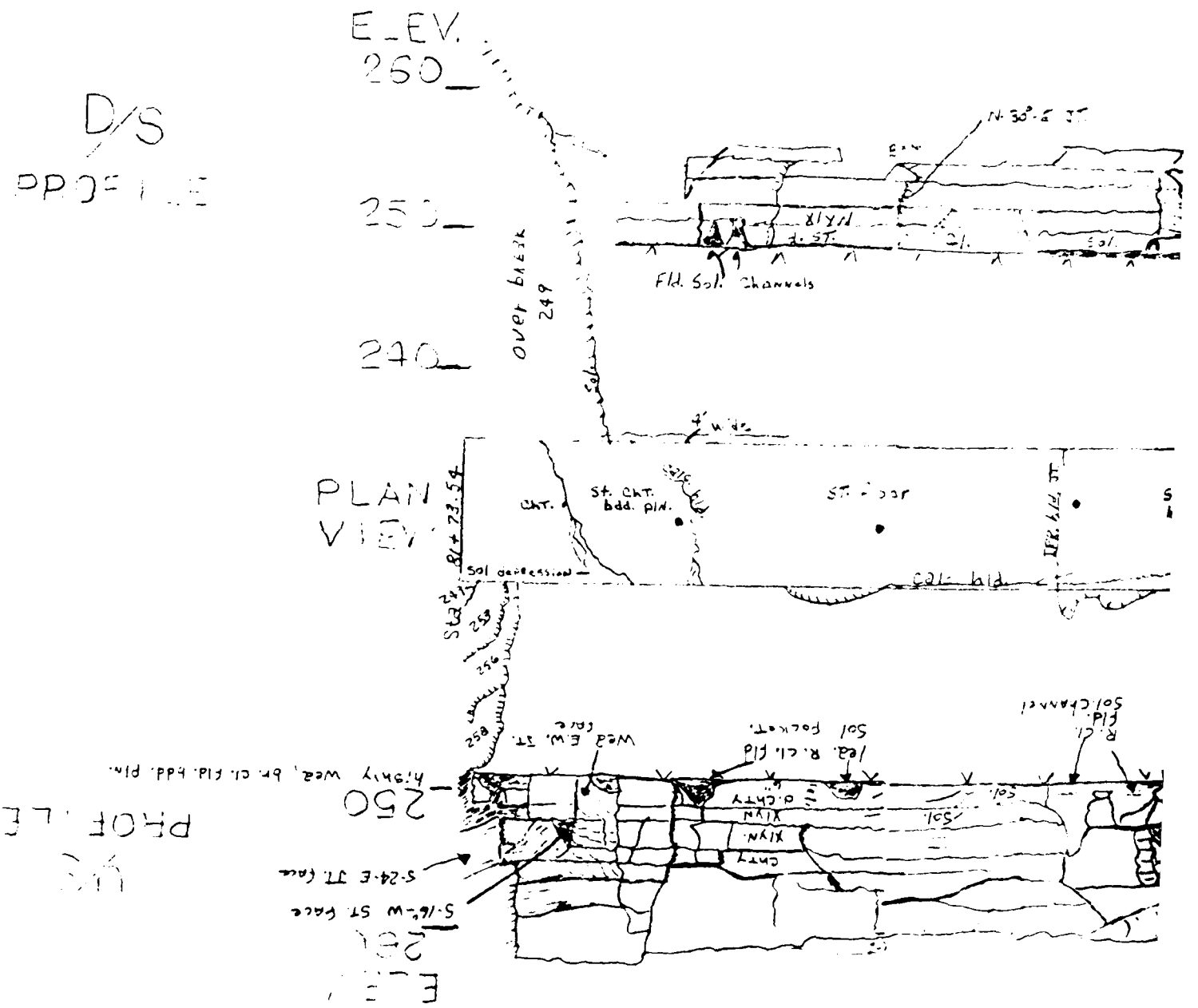
Founding elev. 250.

BAY NO. 7 CUTOFF

1

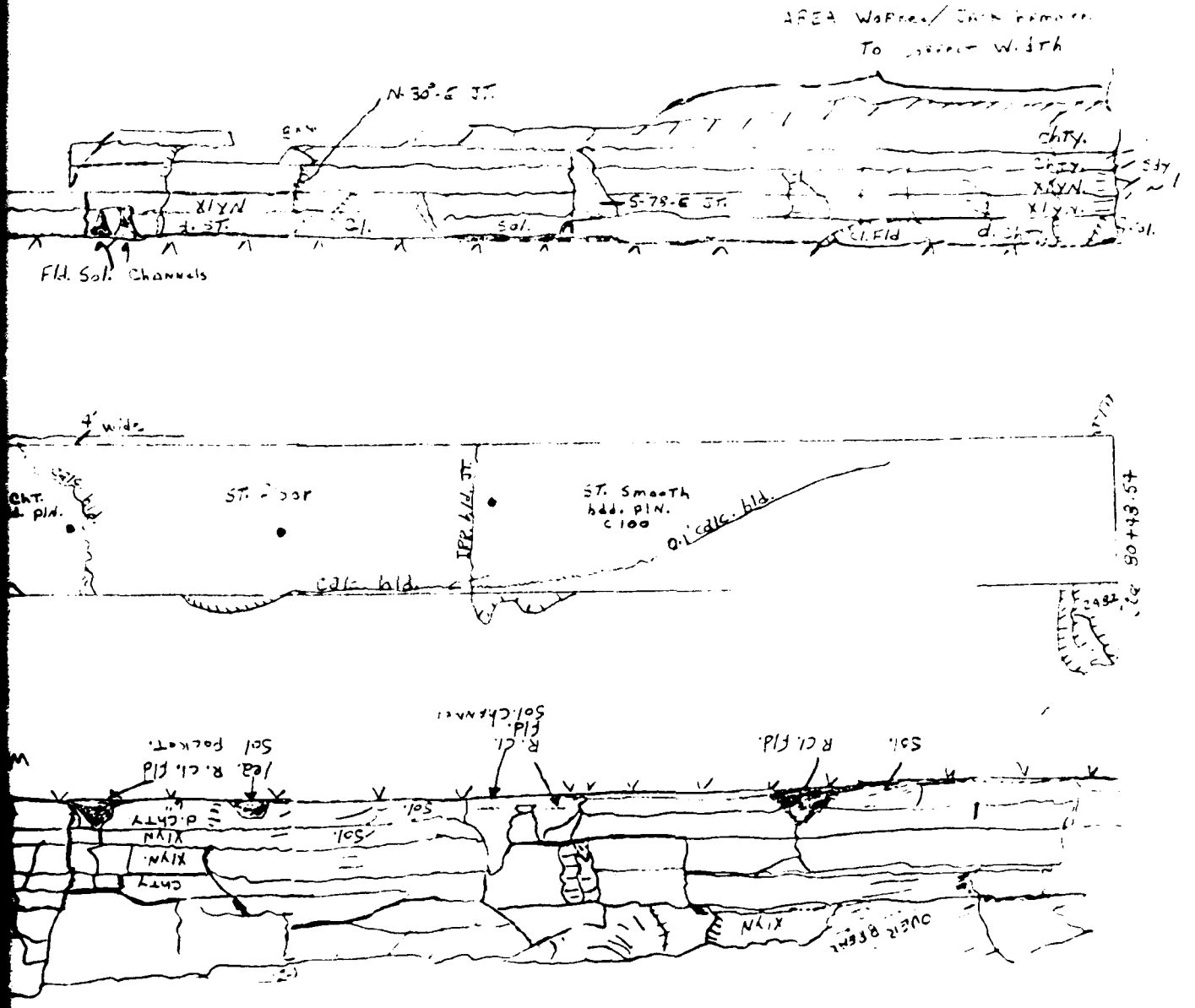


O. 7 CUTOFF TRENCH

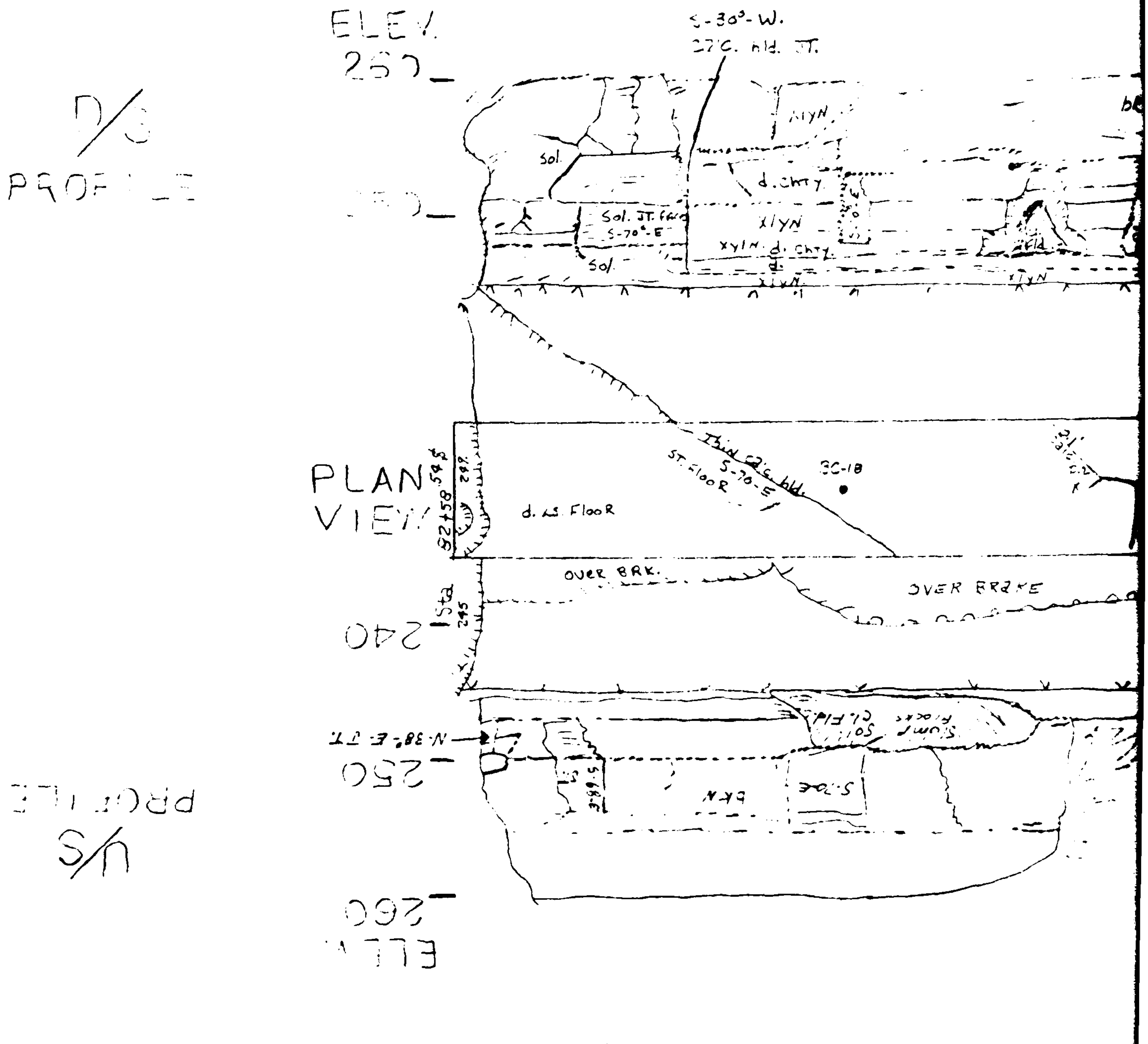


25 Holes OVER DRILLED 8"

BAY NO. 8 CUTO

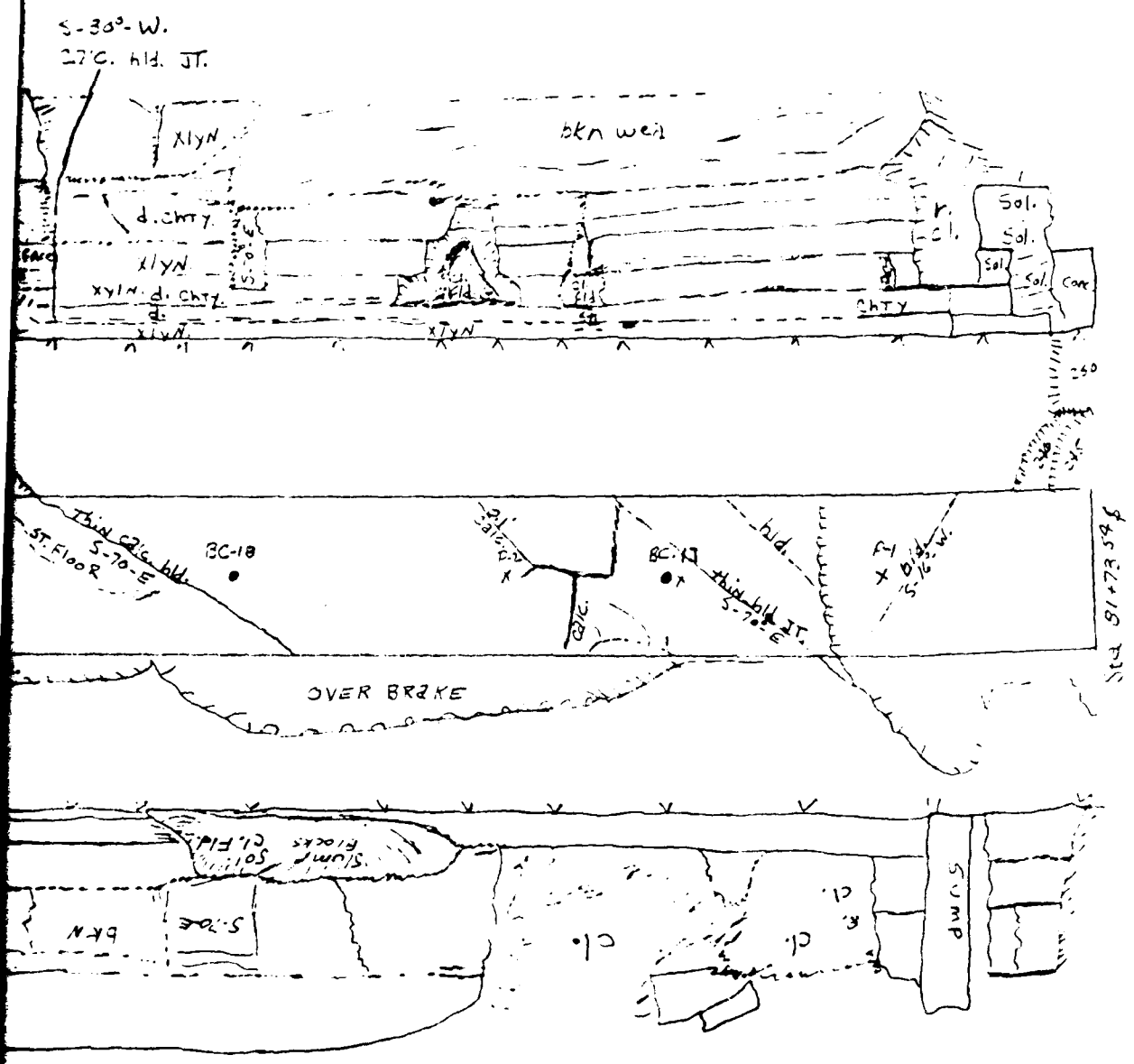


BAY NO. 8 CUTOFF TRENCH Fou 249

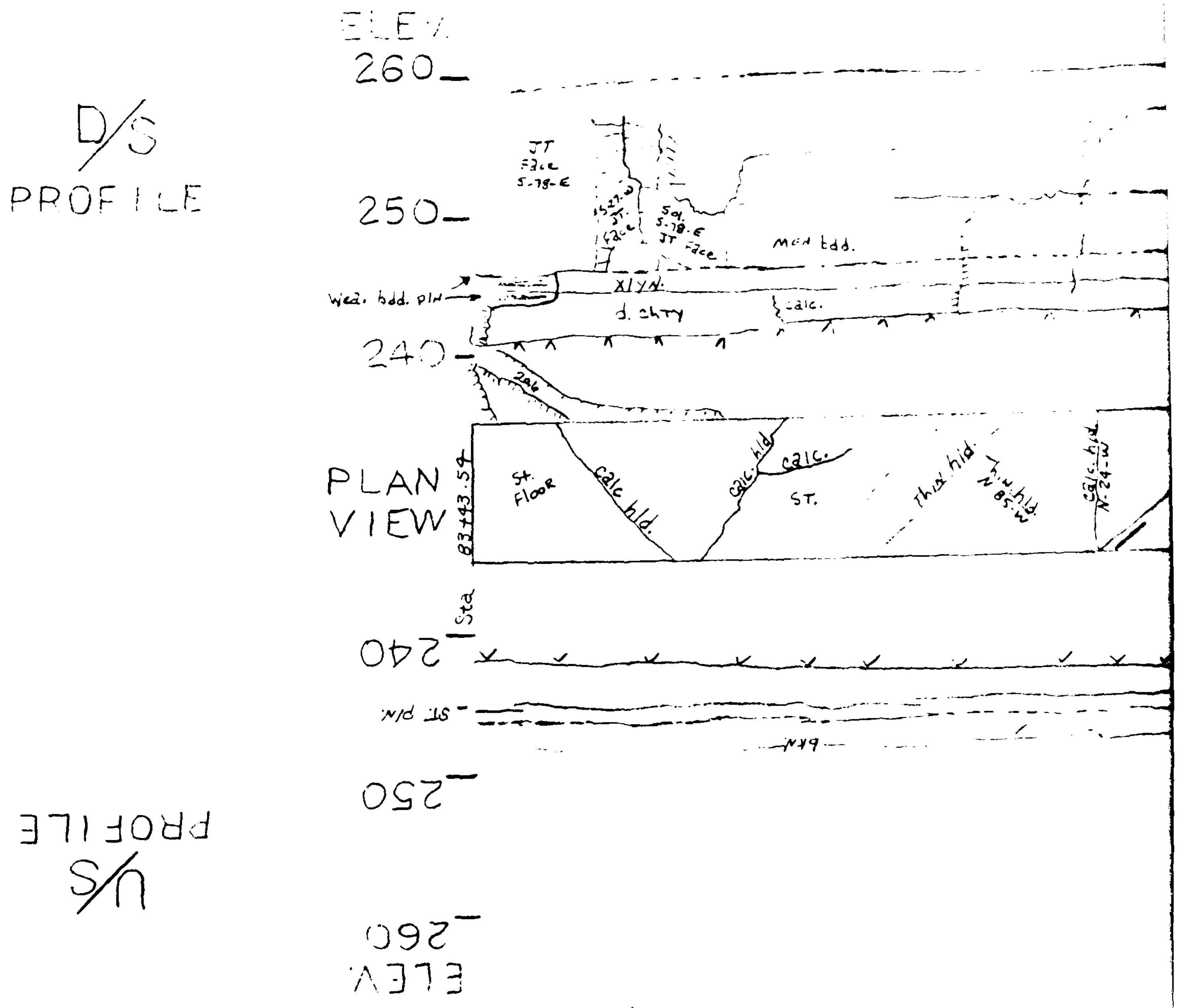


D/S PROFILE
ELEV. 260
S-30°-W.
27°C. hld. JT.
XlyN
Sol.
d. chty
Sol. JT. Fac
S-70°-E
XlyN
xylN. d. chty
PLAN VIEW
32+58.5
d. ls. Floor
ST. Floor
S-70°-E
3C-18
OVER BRK.
OVER BRAKE
240
N-38°-E JT.
250
U/S PROFILE
260

BAY NO. 9 CUTO

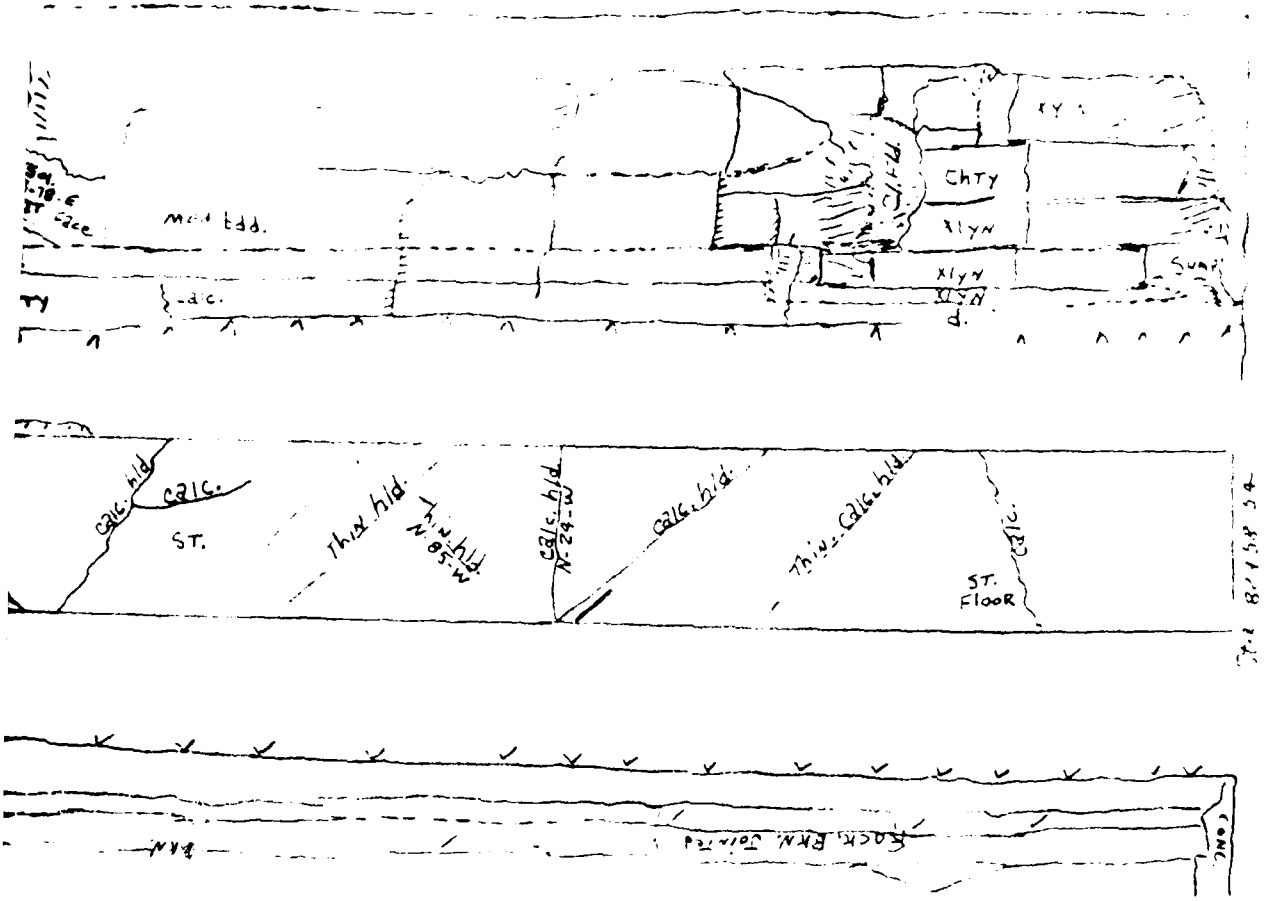


Y NO. 9 CUTOFF TRENCH Fau 245

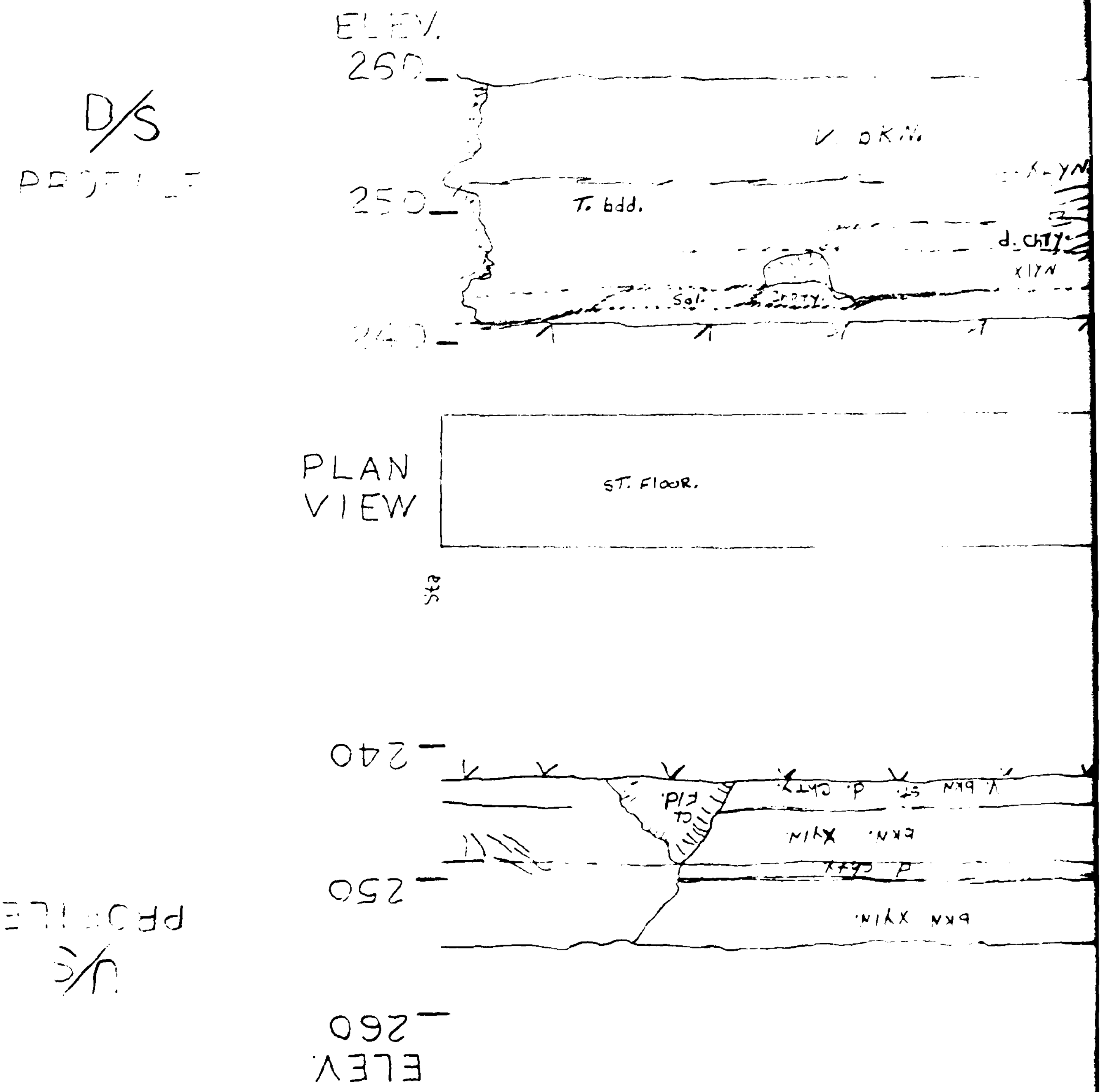


BAY NO. 10 CUTO

1

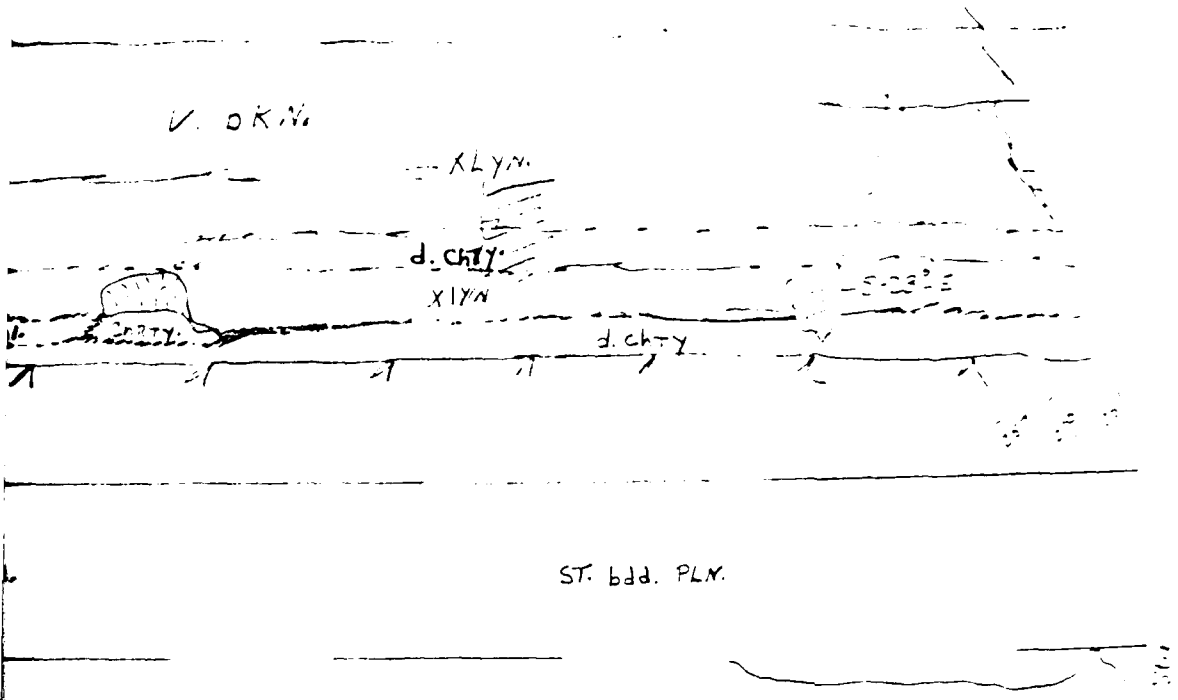


Y NO. 10 CUTOFF TRENCH F-243

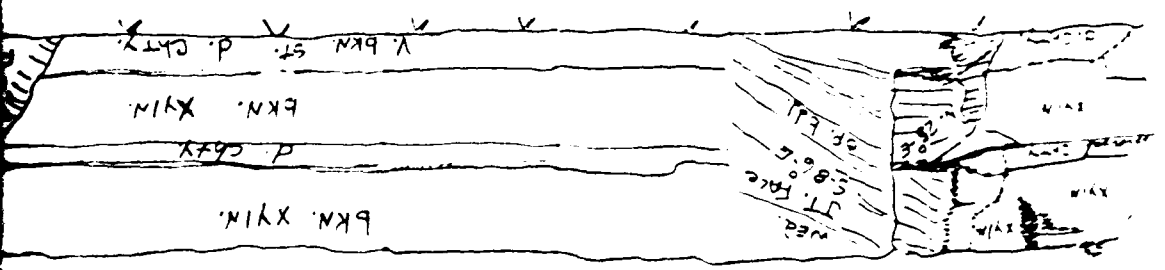


BAY NO 11 CUTO

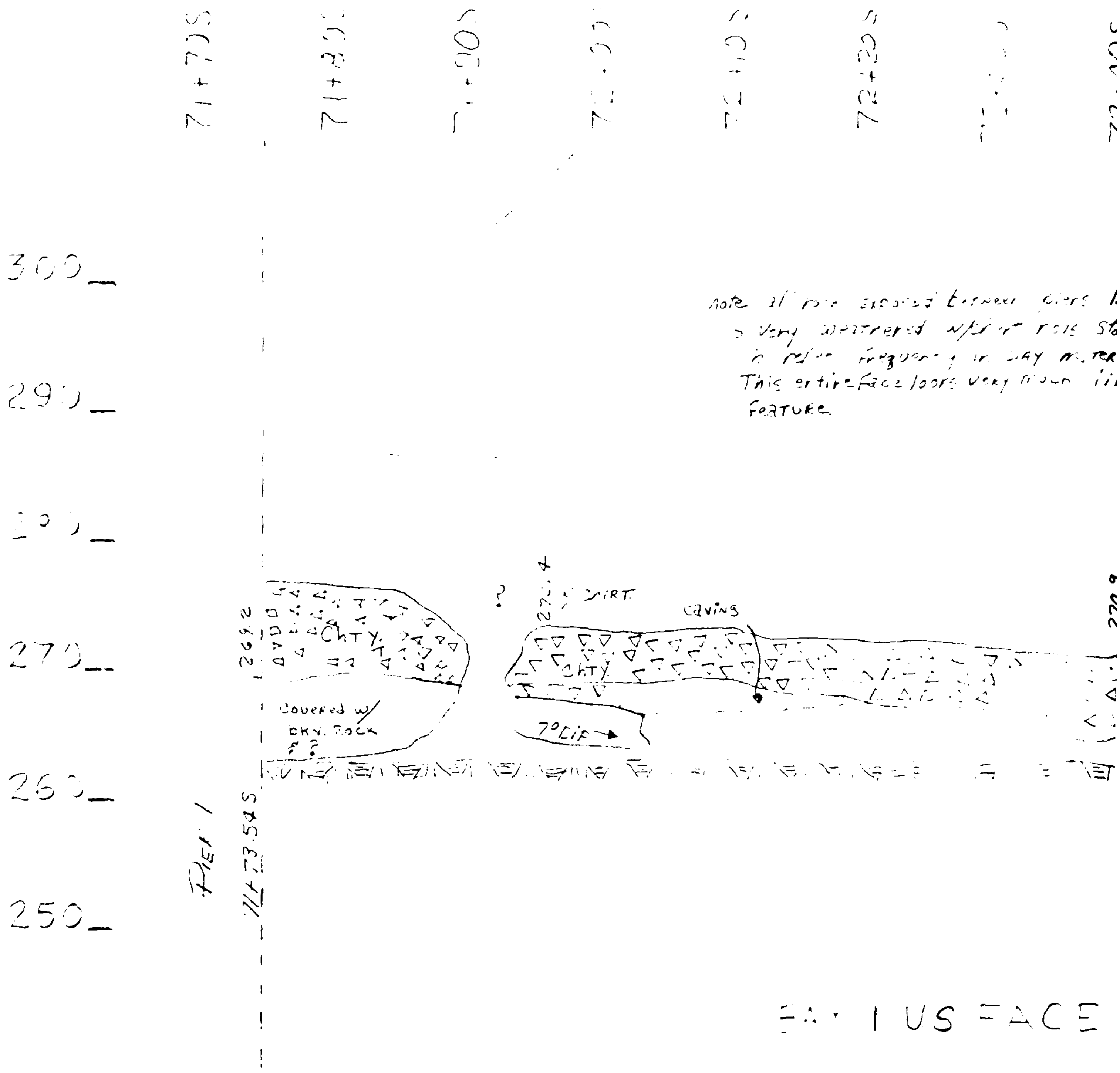
1



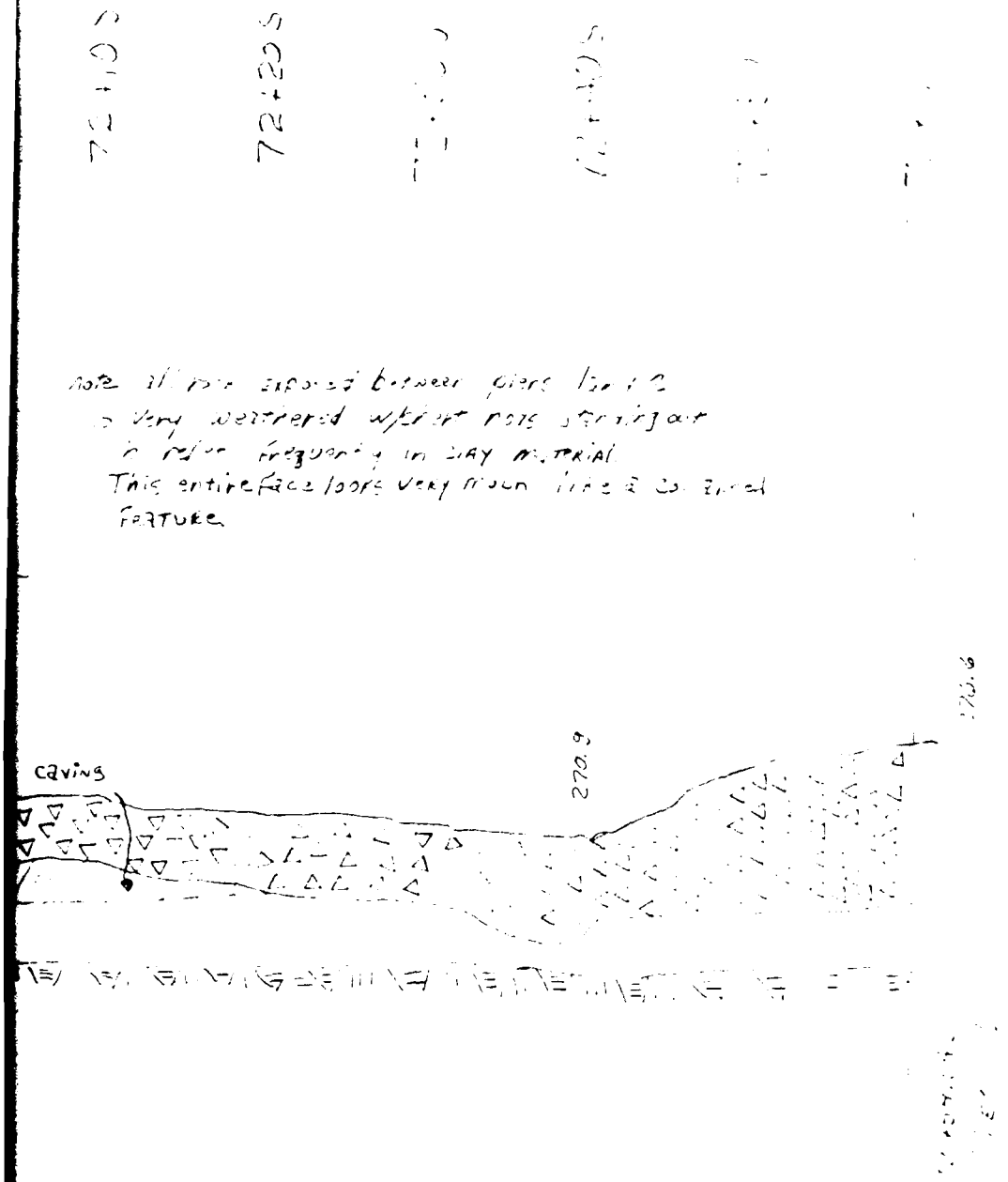
ST. bdd. PLN.



NO // CUTOFF TRENCH F-243


71+70S
71+80S
300
290
270
260
250
Pier 1
71+73.54S
269.2
CHTY.
Covered w/
DRY. ROCK
?
272.4
DIRT
CAVING
CHTY
7° DIP
note ... very weathered ... in ... frequency in clay ...
This entire face looks very ...
FEATURE.
US FACE

1



BAY 1 U/S FACE

300
250
200
150
Boat Channel
BAY

Sol. Channel.
261.0
251.2
BAY E

75+40 S

75+50

75+60

15+70S

15+80S

75+90

76+00S

300

290

280

270

260

250

PIER 4

75+43.54

PROFILE ALON

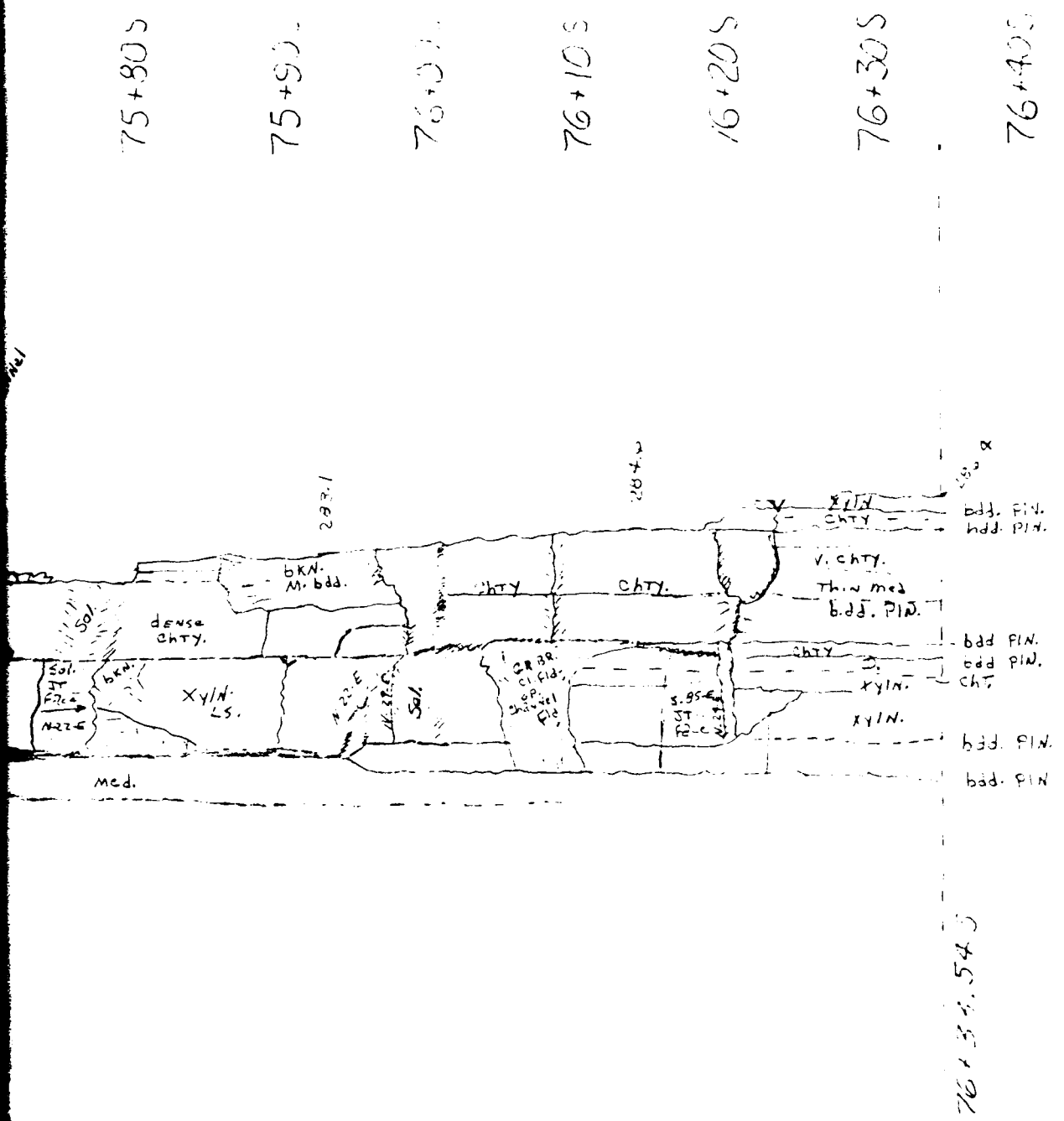
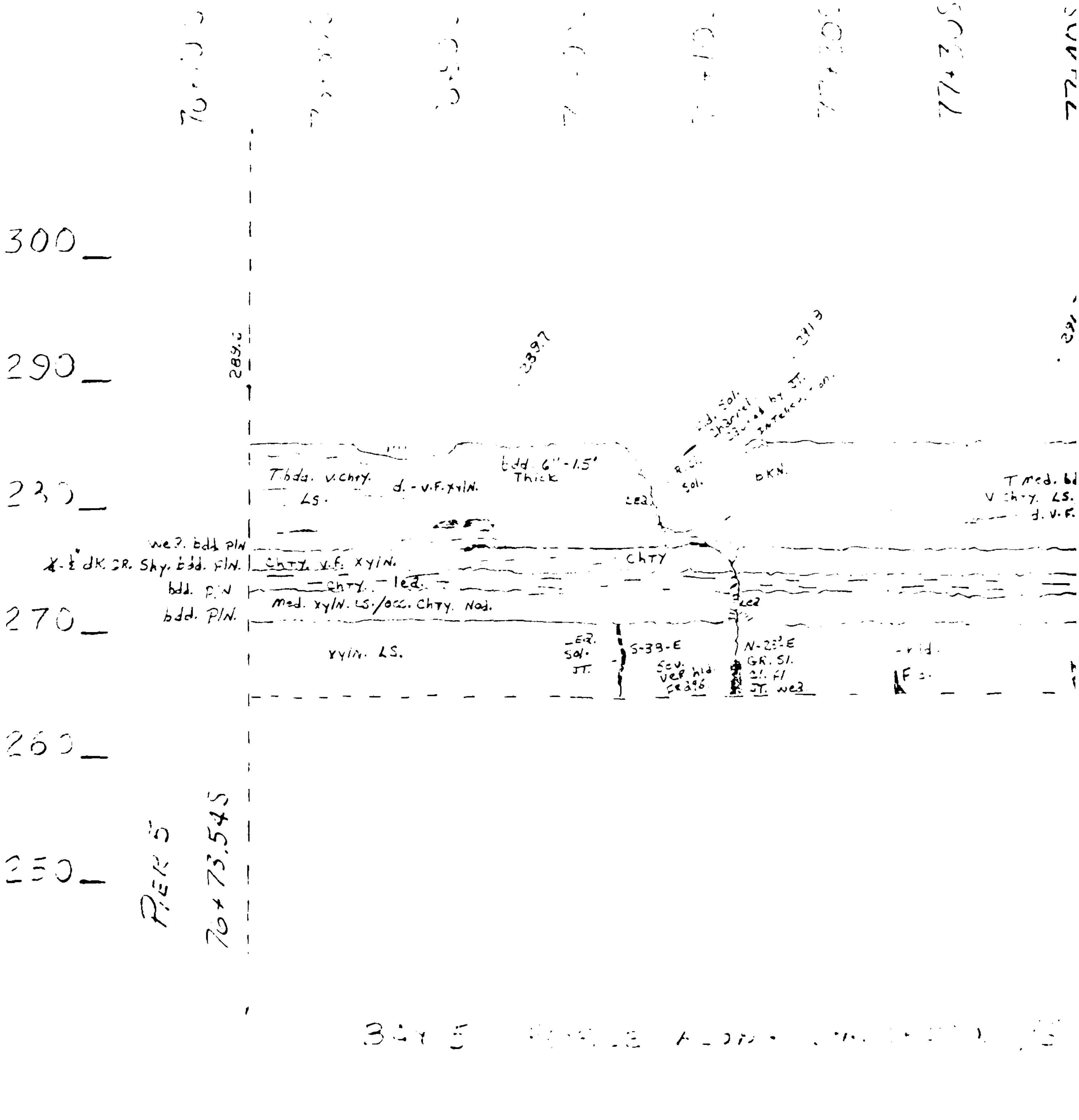
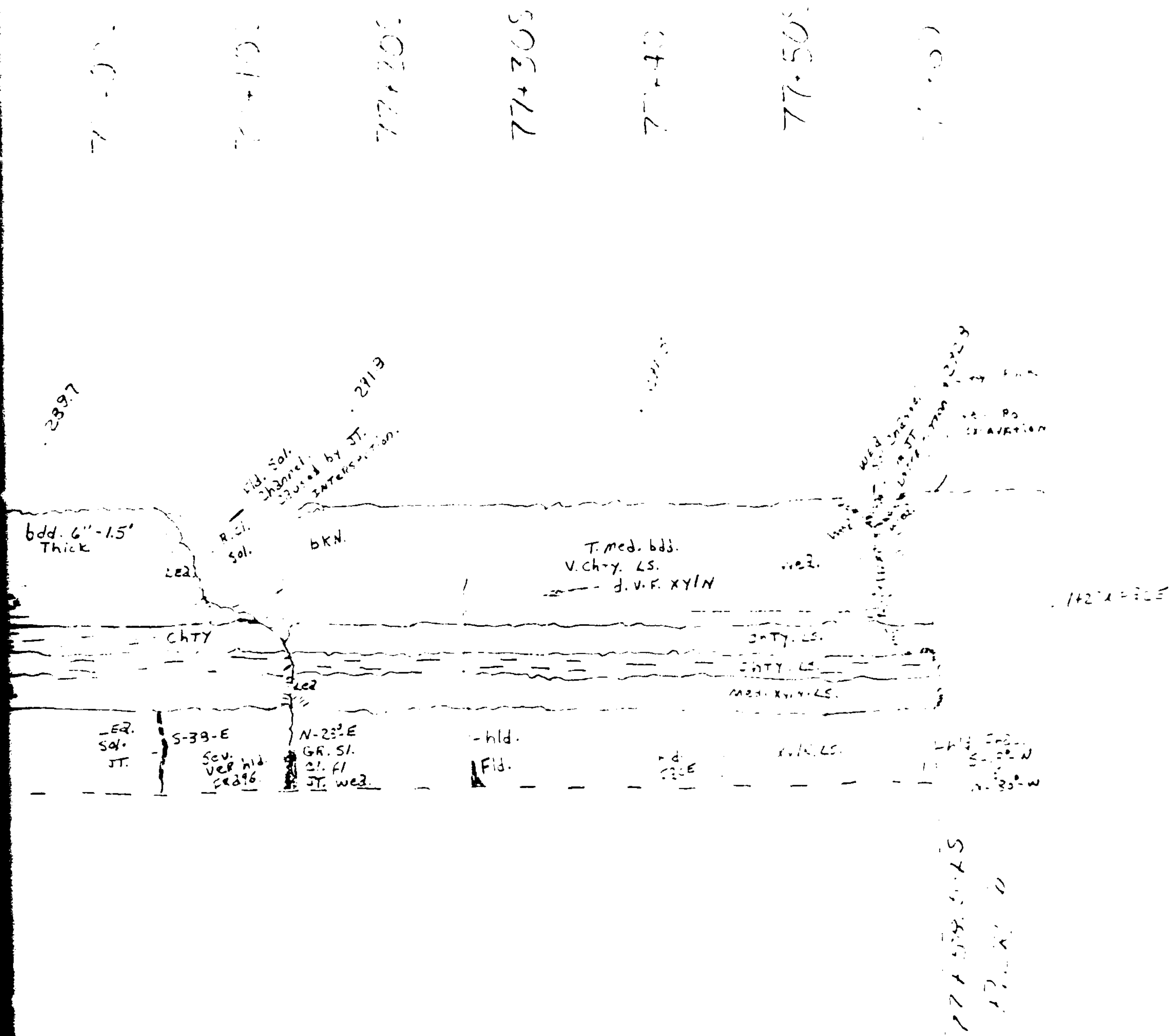
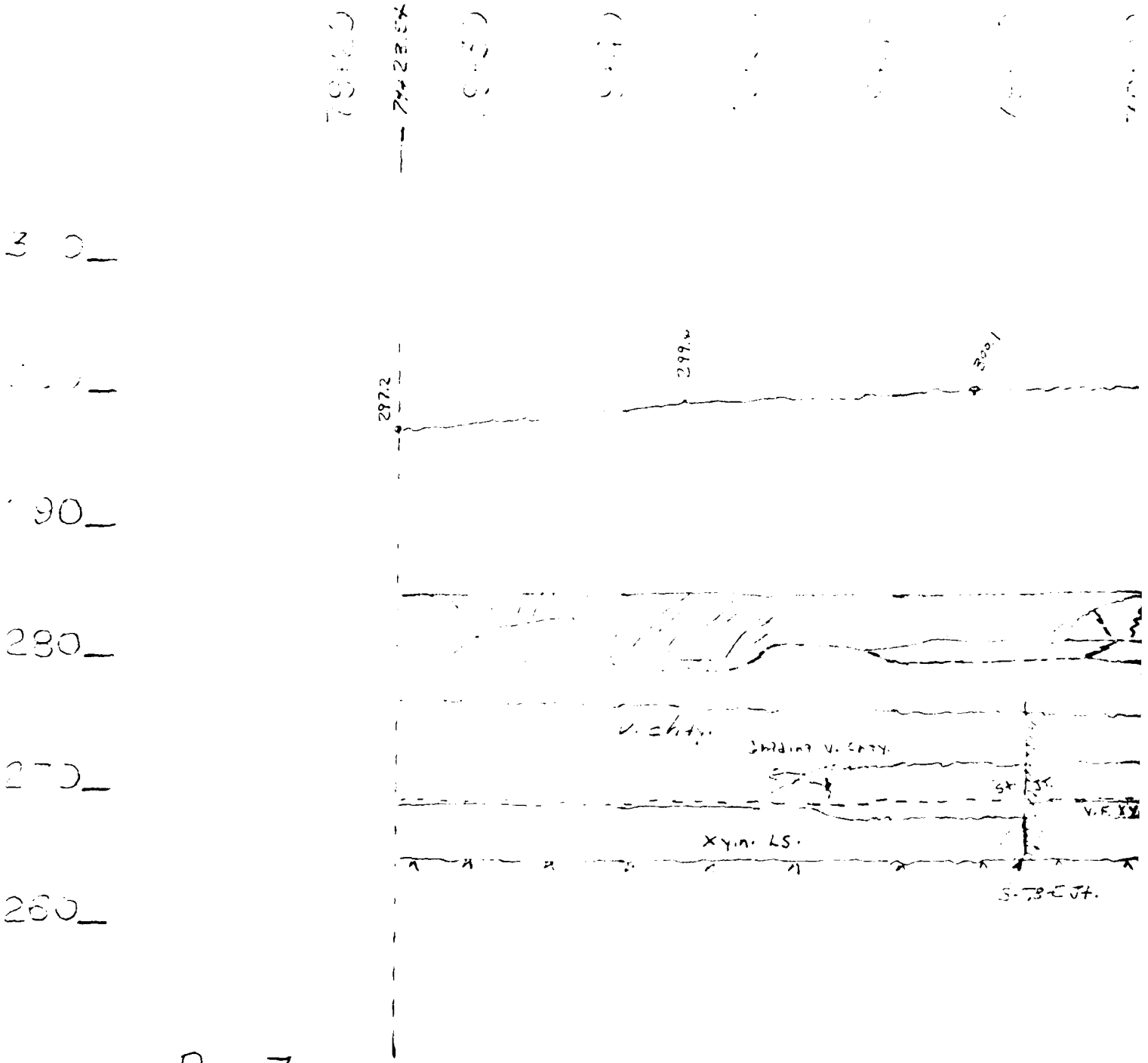


Fig. 1 PROFILE ALONG Sta. 1+27.1 U/S FACE


300
290
280
270
260
250
289.0
289.7
291.3
77+70
Tbds. v.chty. LS.
d. - v.F. xyln.
bdd. 6"-1.5' Thick
DKN.
T med. bd
V chty. LS.
d. v.F.
we?. bdd. pln
dk. GR. Shy. bdd. FLN.
bdd. PLN
bdd. PLN.
Chty. v.F. xyln.
Chty. led.
CHTY
med. xyln. LS./occ. Chty. Nod.
xyln. LS.
Sol.
JT.
S-39-E
N-23°E
GR. SL.
JT. we?
PIER 5
70+73.545

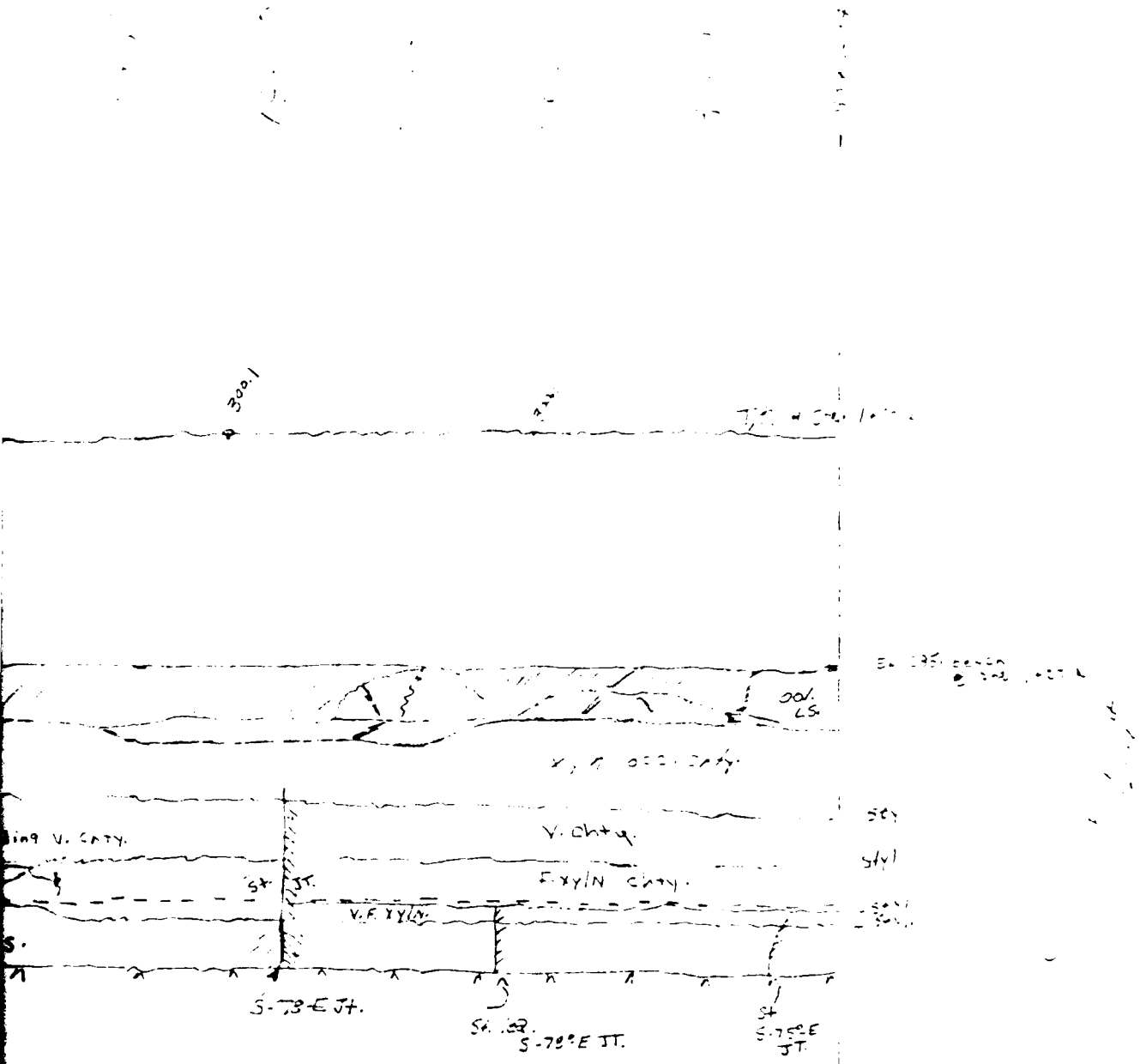

77+20
77+30
77+50
2397
2313
Fld. Sol. Channel caused by JT. Intersection.
bdd. 6"-1.5' Thick
R. Sl.
Sol.
BKN.
Led.
T. med. bdd.
V. Chty. LS.
d. V. F. XYLN
Chty
Chty. LS.
Med. Xyln. LS.
Led.
Sol.
JT.
S-39-E
Sev. Ver hld. Fed96
N-23°E
GR. Sl.
JT. wed.
hld.
Fld.



PIER 7

BAY 7 /S FACE

1

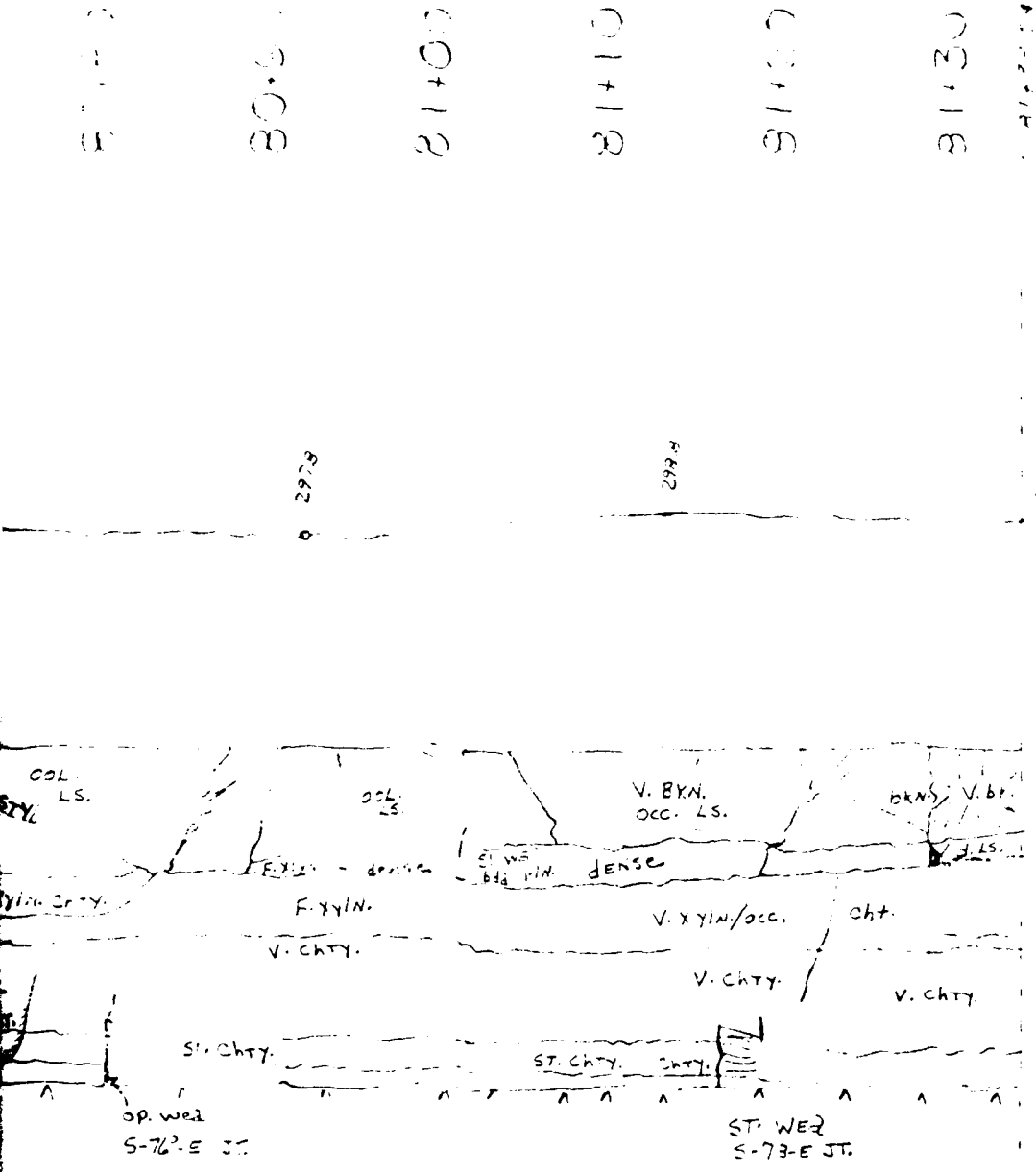


BAY 7 N/S FACE

PIER 3

Fig. 8

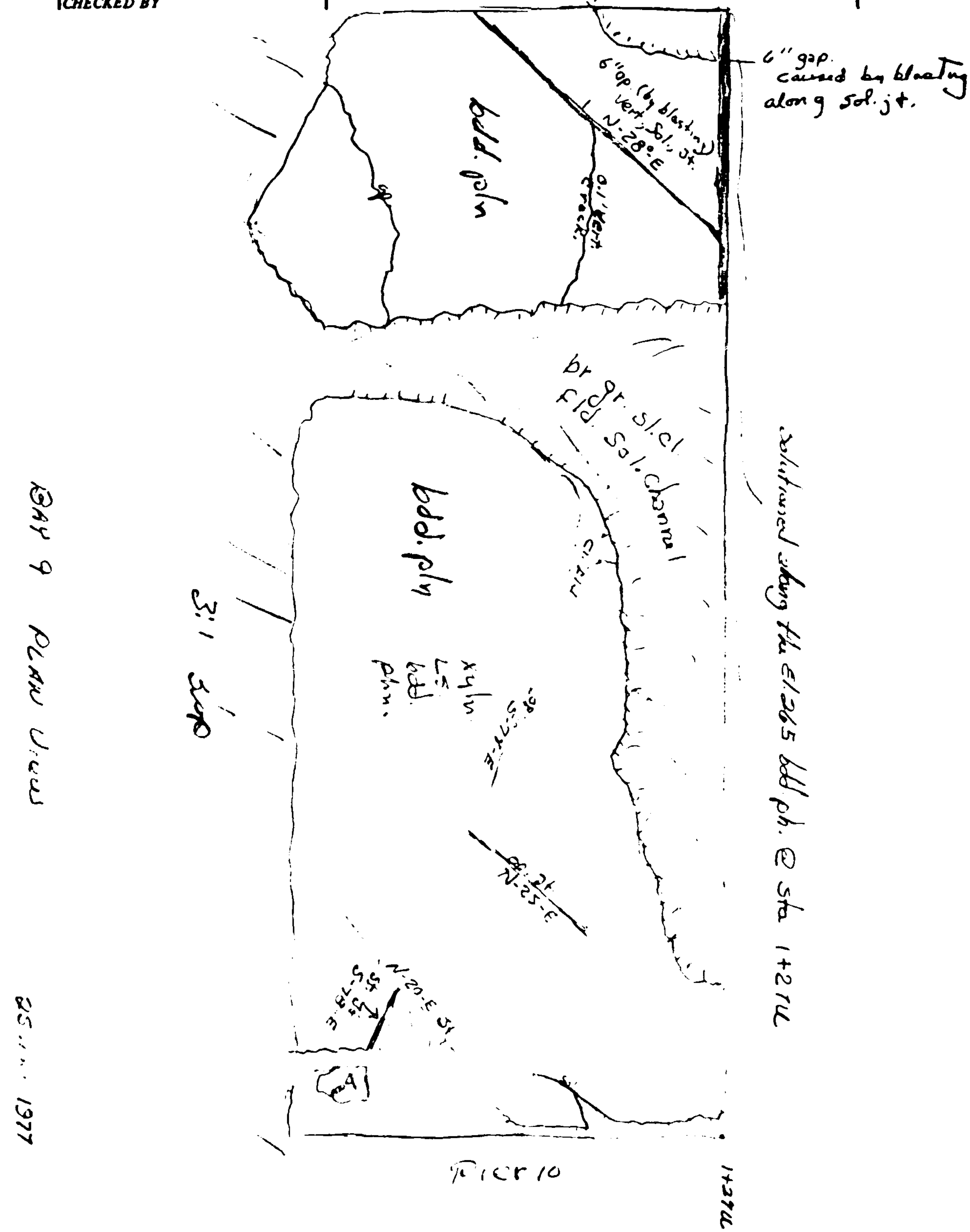
EAST BUS FACE

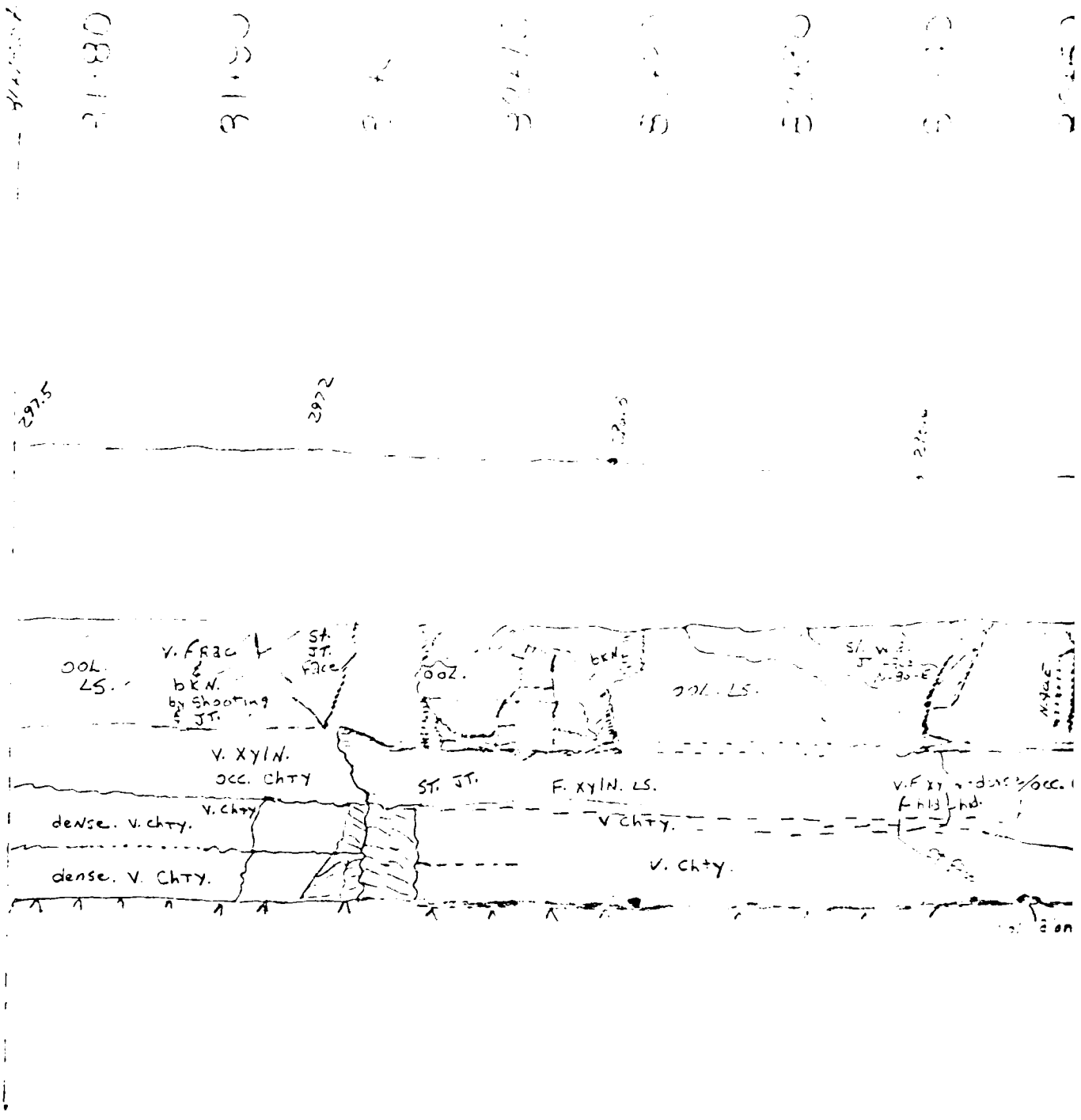


BAY & US FACE

Pier 9

CORPS OF ENGINEERS, U.S. ARMY OHIO RIVER DIVISION	COMPUTATION SHEET	PAGE OF PAGES
		DATE
INSTALLATION	SUBJECT	
COMPUTED BY	COMPUTATION Pier 9	NUMBER
CHECKED BY		

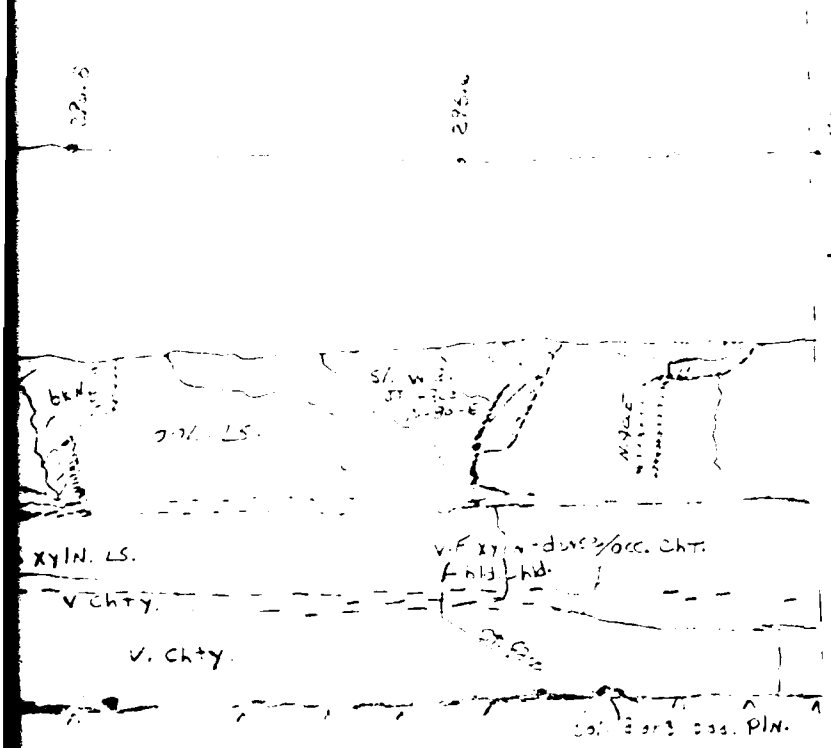




PIER 9

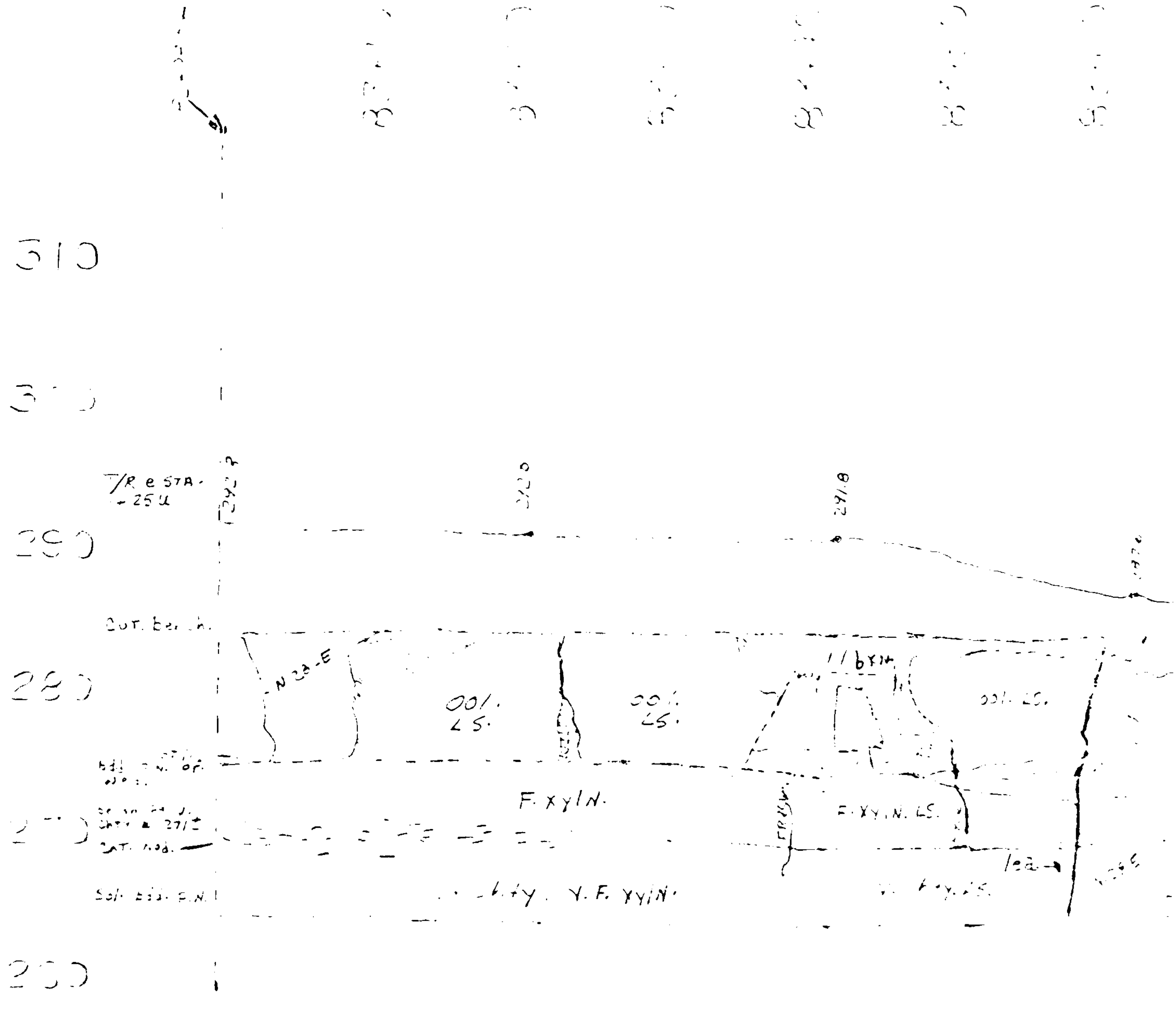
BAY 9 WS FACE

1



BAY 9 WS FACE

PIER 10

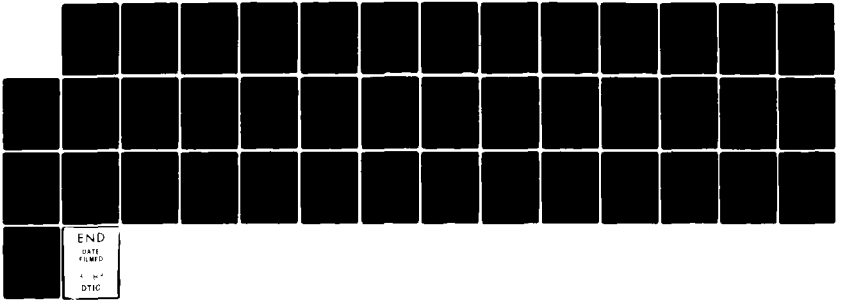


PIER 10

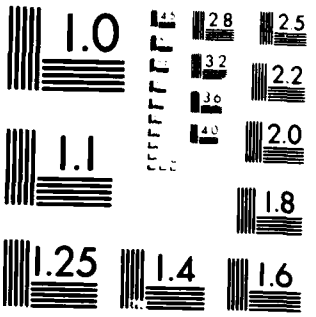
BAY 10

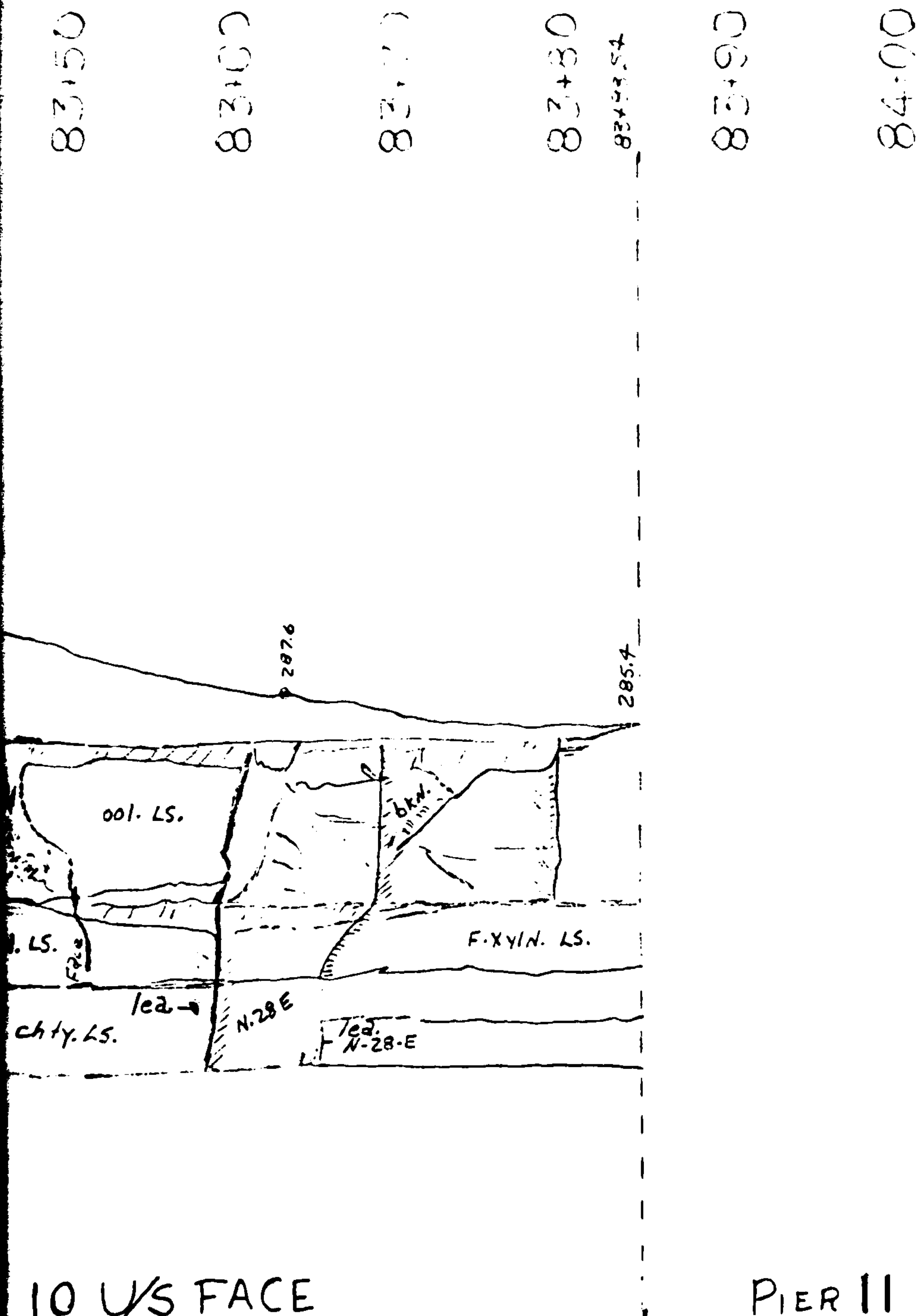
AD-A125 057 SMITHLAND DAM OHIO RIVER FOUNDATION REPORT VOLUME II PHOTOGRAPHS AND FOUNDATION MAPS(U) JONES-TEER SMITHLAND KY R SCHIPP ET AL. FEB 83 DACW62-75-C-0015 3/3

UNCLASSIFIED F/G 13/13 NL



END
DATE FILMED
DTIC





10 U/S FACE

PIER 11

2

84+00 84+10 84+20 84+30 84+40 84+50 84+60 84+70

310

300

290

280

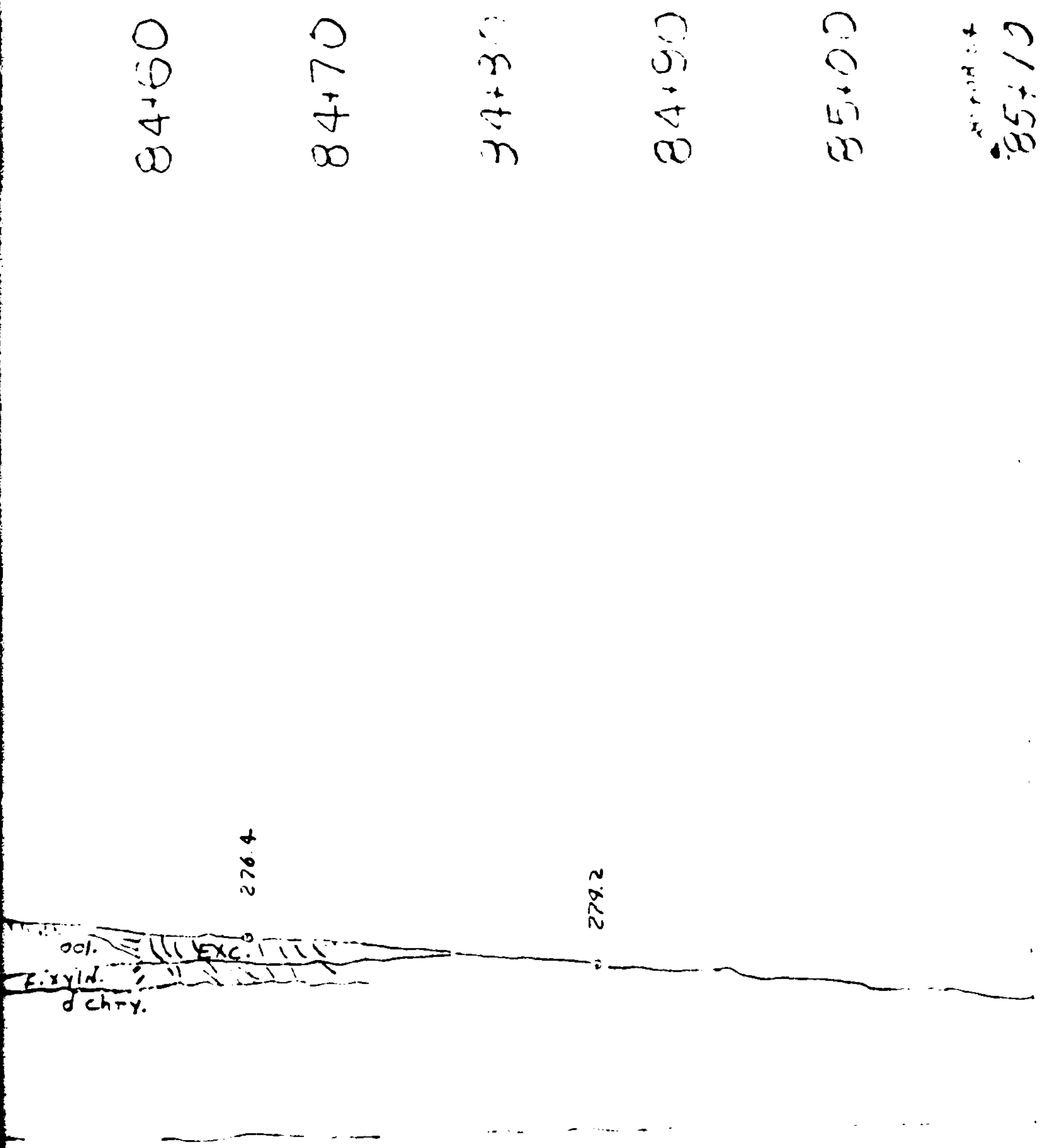
270

260

PIER 11

BAY 11 U/S FACE

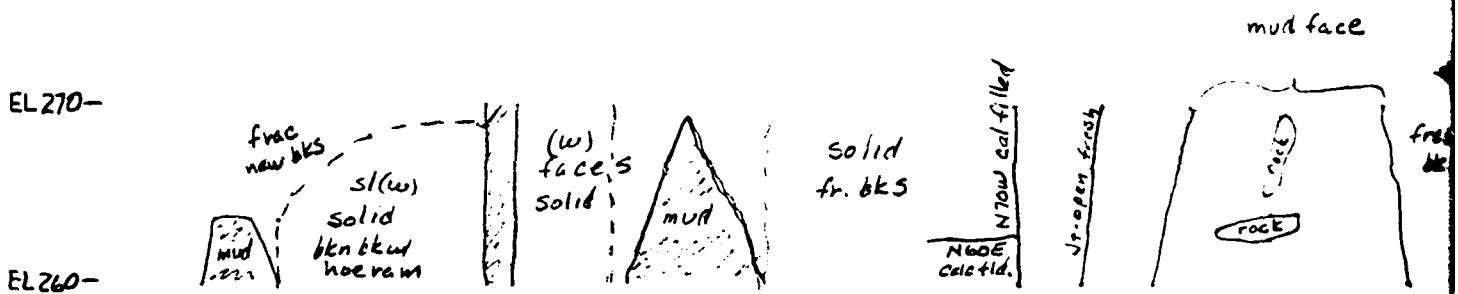
1



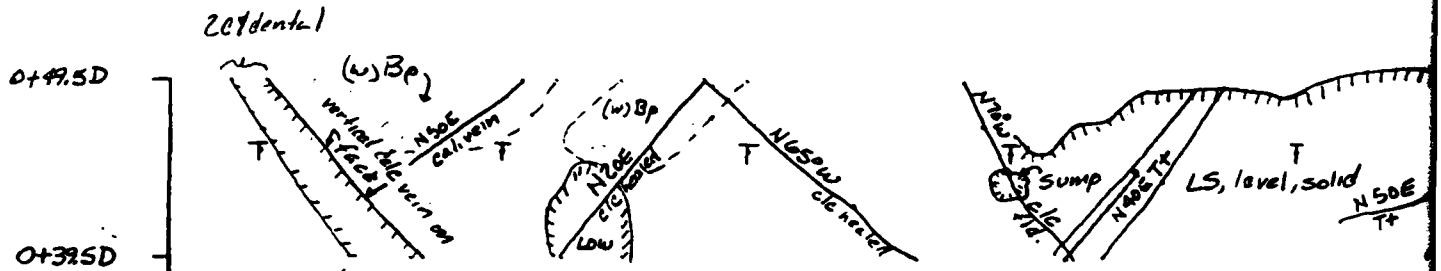
BAY 11 U/S FACE

PIER 12

2



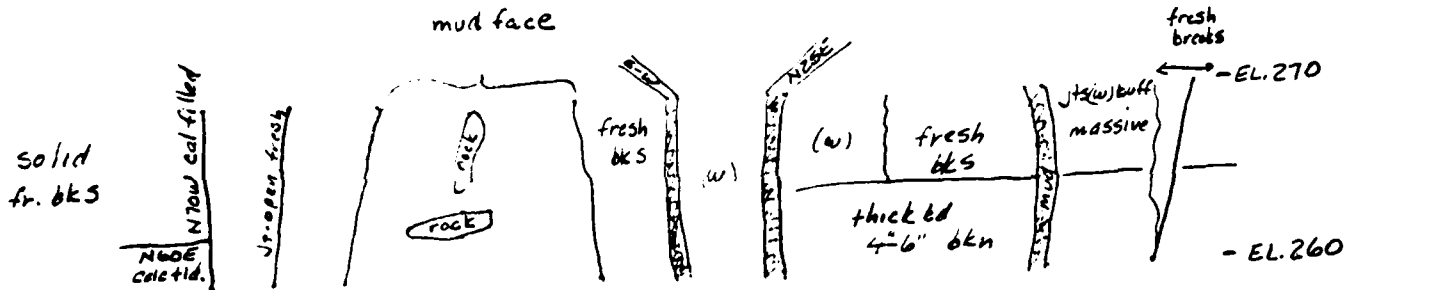
PRESPLIT FACE
STA 0+49.5D



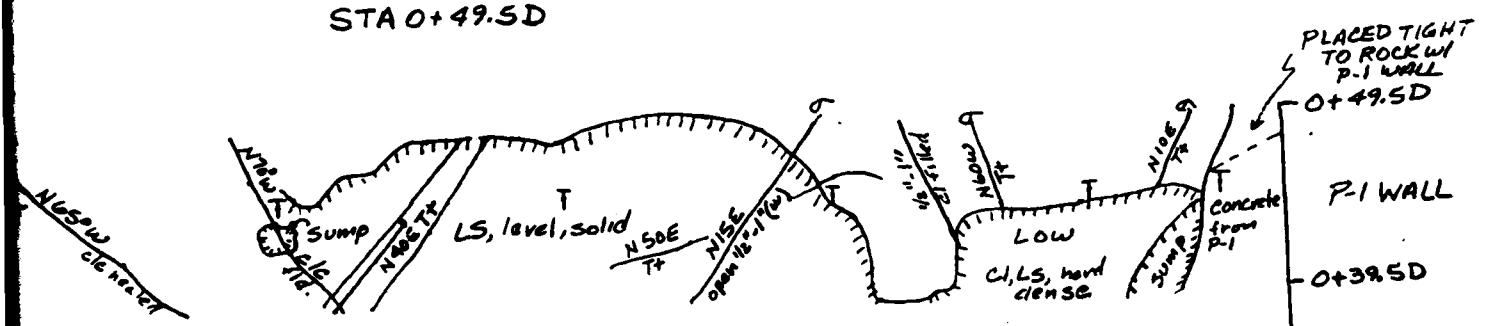
STA 72+78.54S
℄ P-2

STA 72+23.54S

FOUNDATION
GATE BAY 1



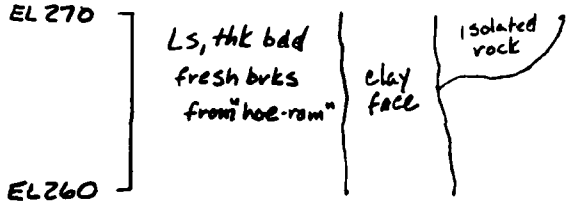
PRESPLIT FACE
STA 0+49.5D



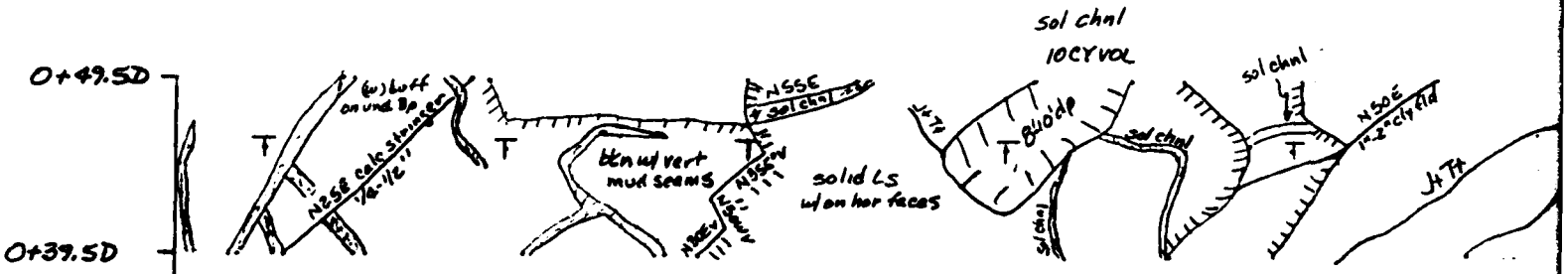
STA 72+23.54S

STA 71+73.54S

FOUNDATION
GATE BAY 1



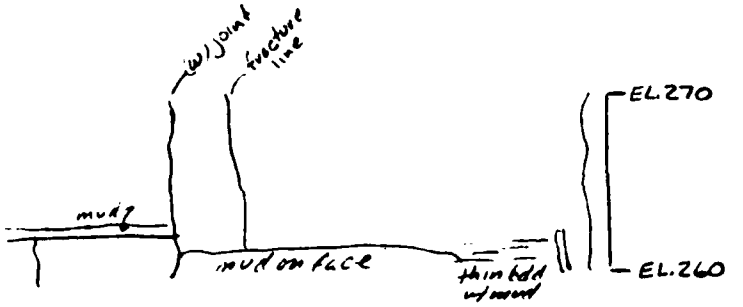
clay face
no rock showing
sloped back 50°±

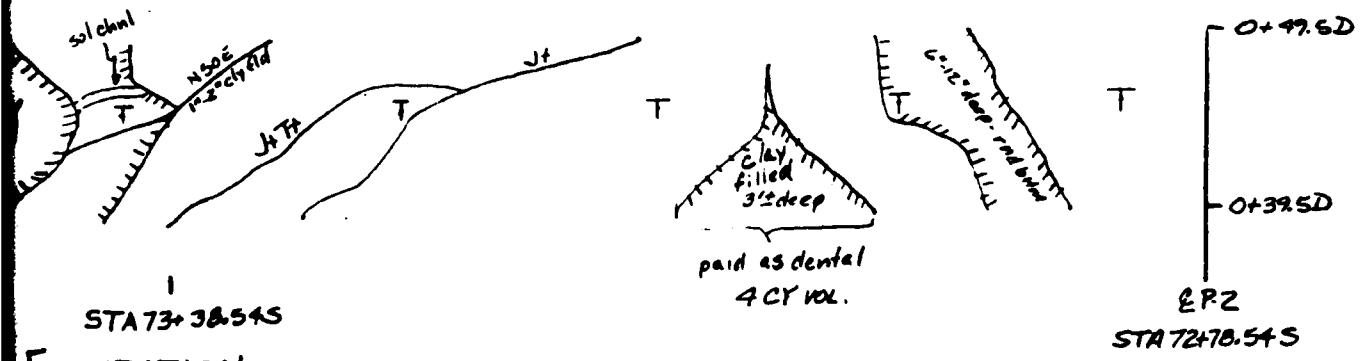


℄ P-3
STA 74+03.54S

STA 73+38.54S

FOUNDATION
GATE BAY 2

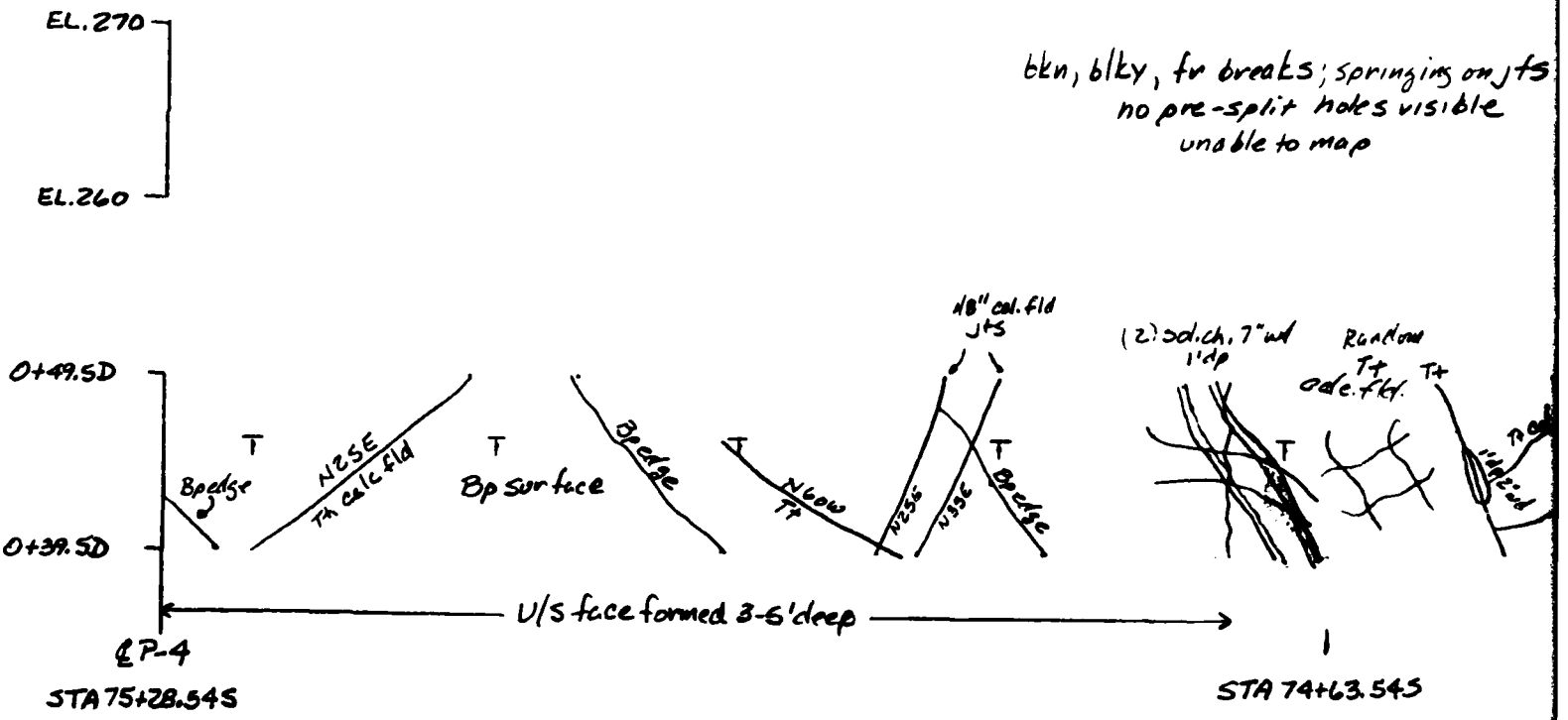




1
STA 73+38.54S

FOUNDATION
GATE BAY 2

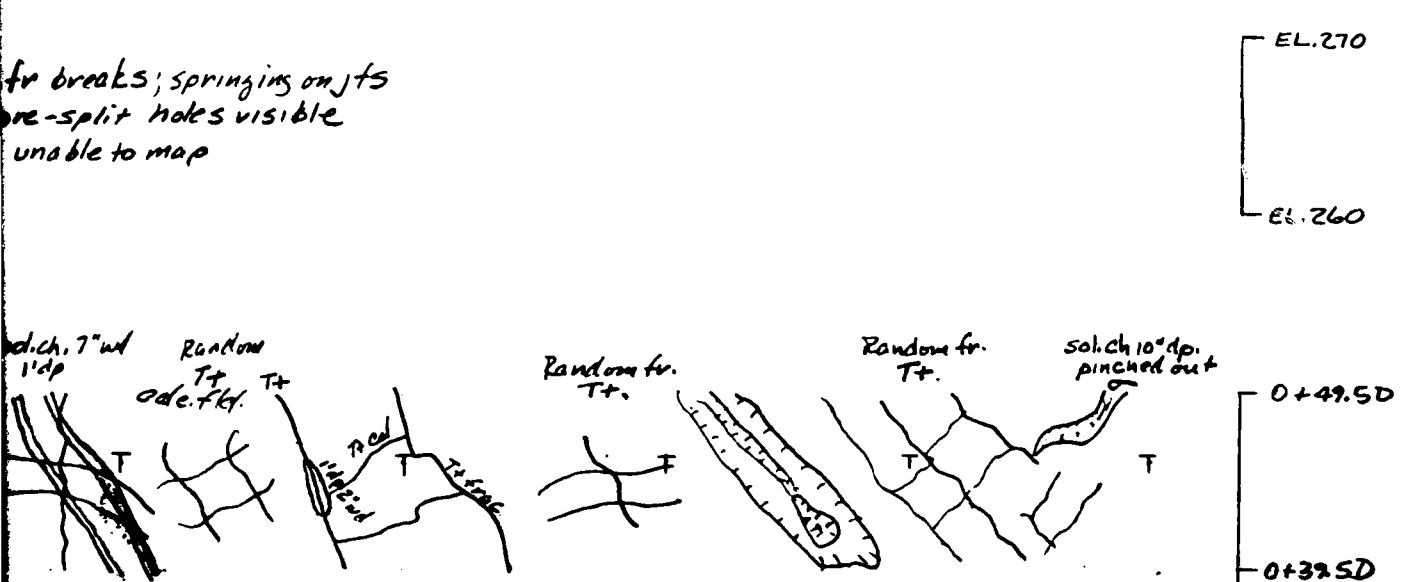
E.P.2
STA 72+78.54S



bkn, blky, fr breaks; springing on jts
no pre-split holes visible
unable to map

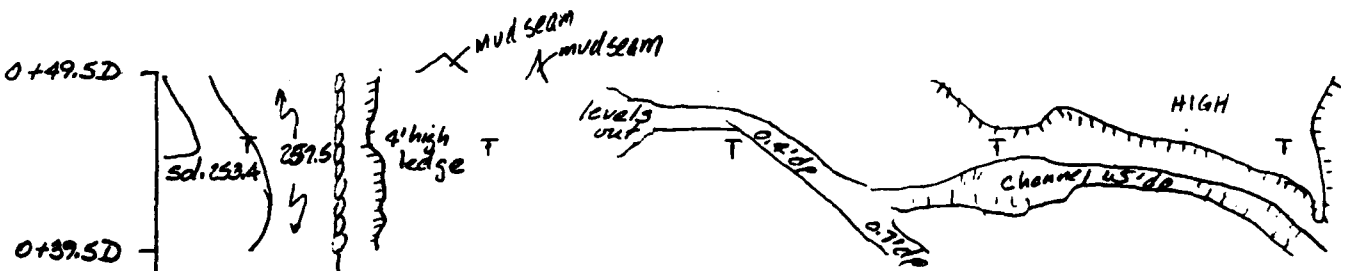
FOUNDATION GATE BAY 3

fr breaks; springing on jts
ne-split holes visible
unable to map



UNDATION GATE BAY 3

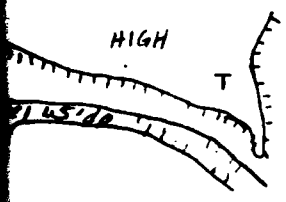
2



℄ P-5
STA 74+53.54 $

75+78.54 $

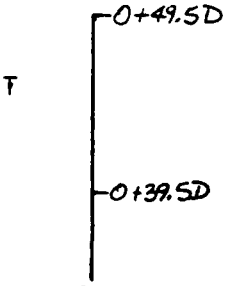
FOUNDATION
GATE BAY 4



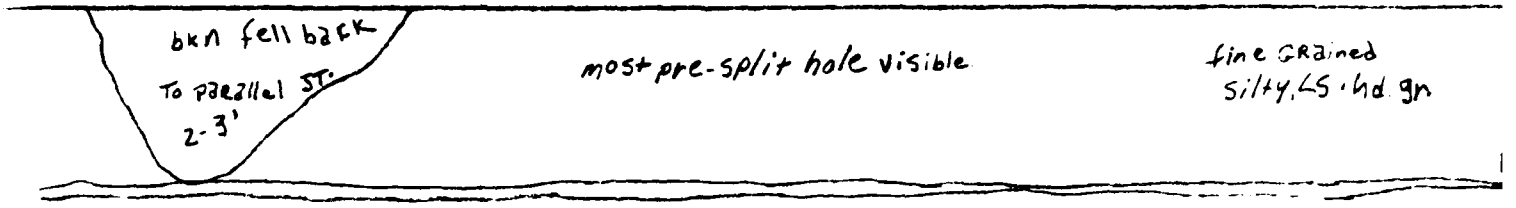
75+78.54$

FOUNDATION
GATE BAY 4

Bp, Ls, hol, gr
w/ cherty
layers



℄ P-4
STA 75+28.54$

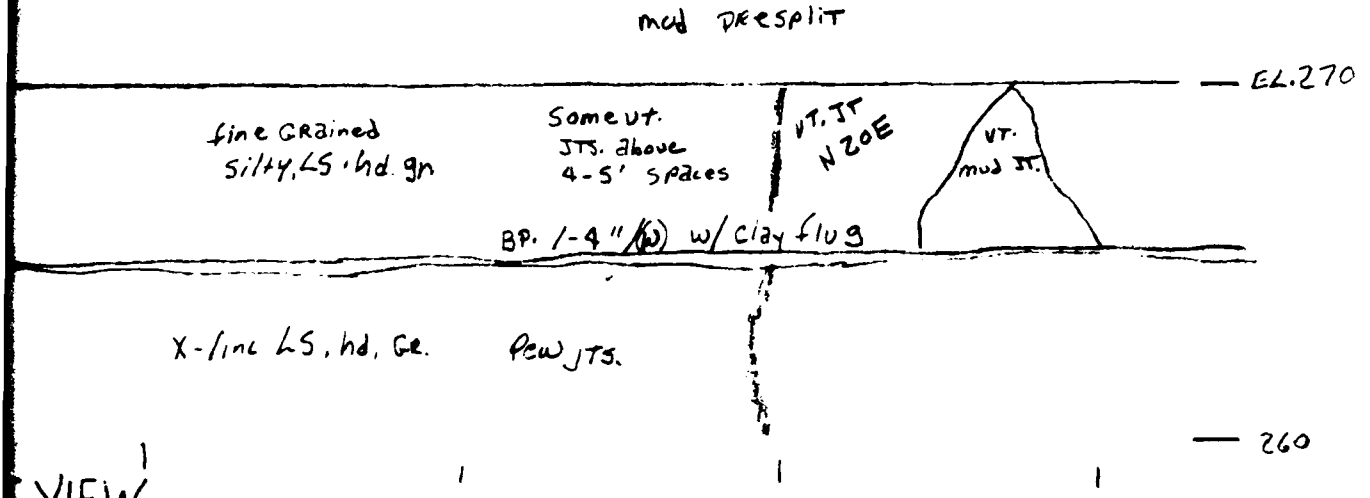


X-line LS, md. Ge.

E
P-6

FACE VIEW
D/S PRESPLIT LINE
STILLING BASIN 5

PLAN VIEW
D/S STILLING BASIN



VIEW
ESPLIT LINE
LING BASIN 5

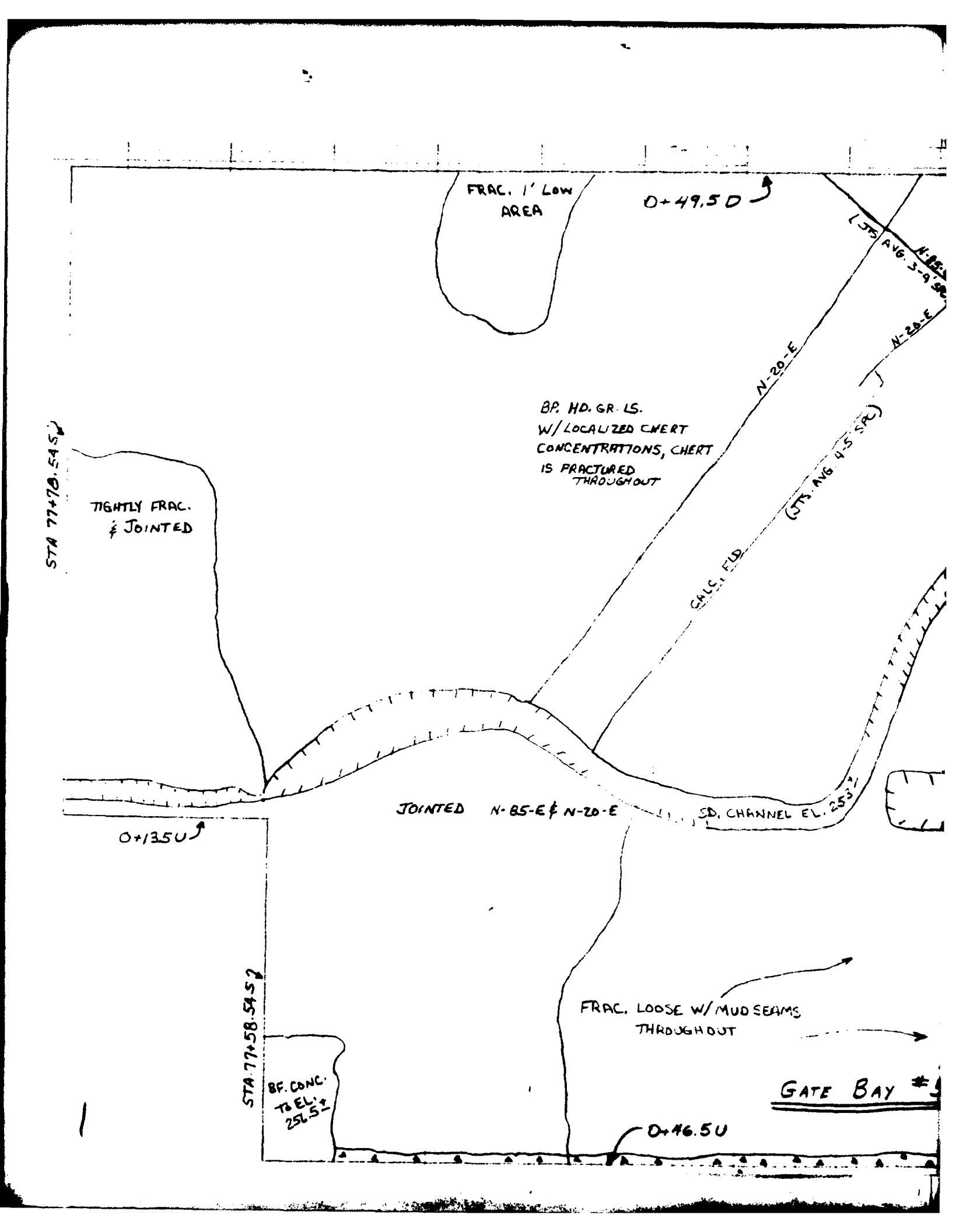
0+49.50

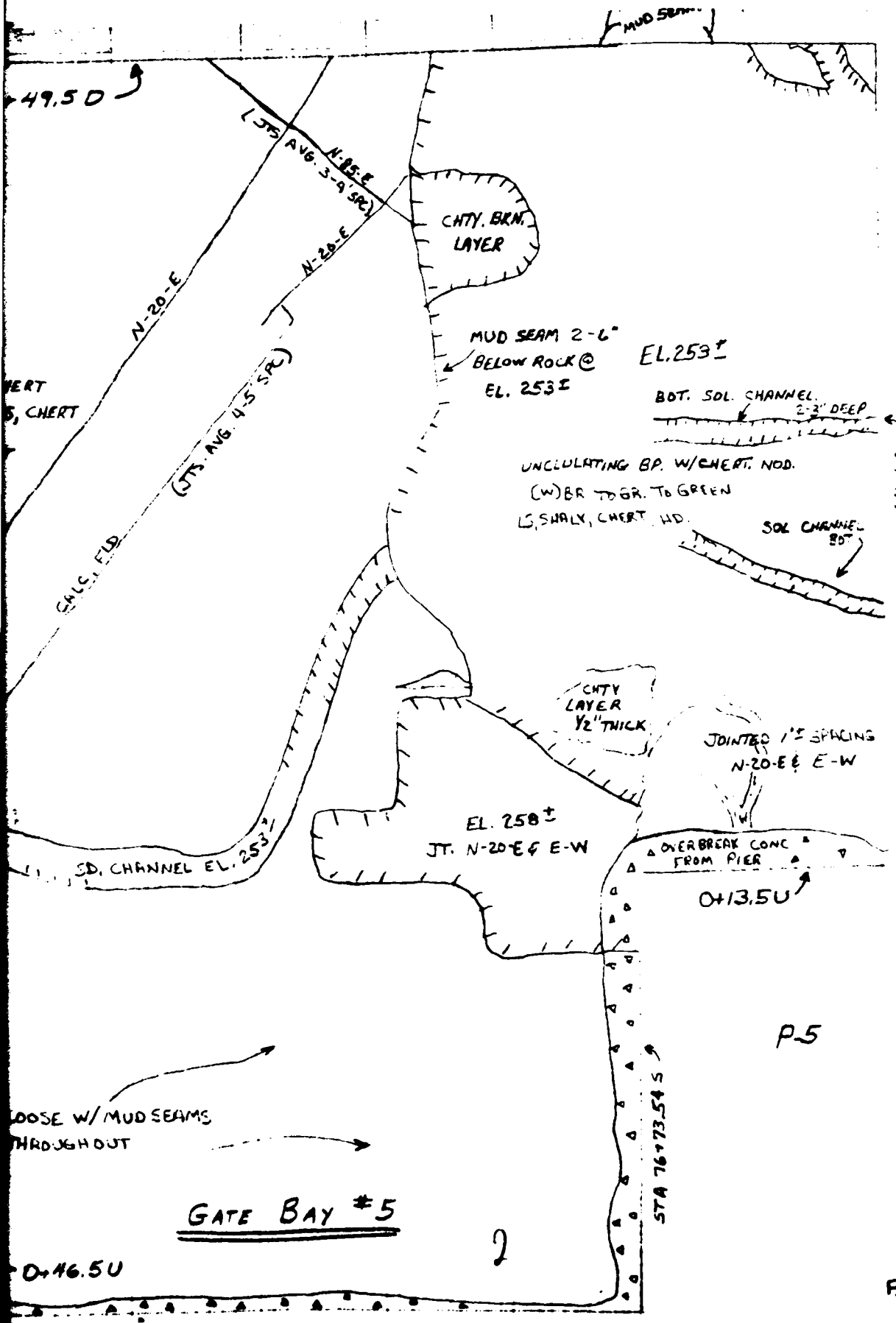
0+39.50

LAN VIEW
STILLING BASIN

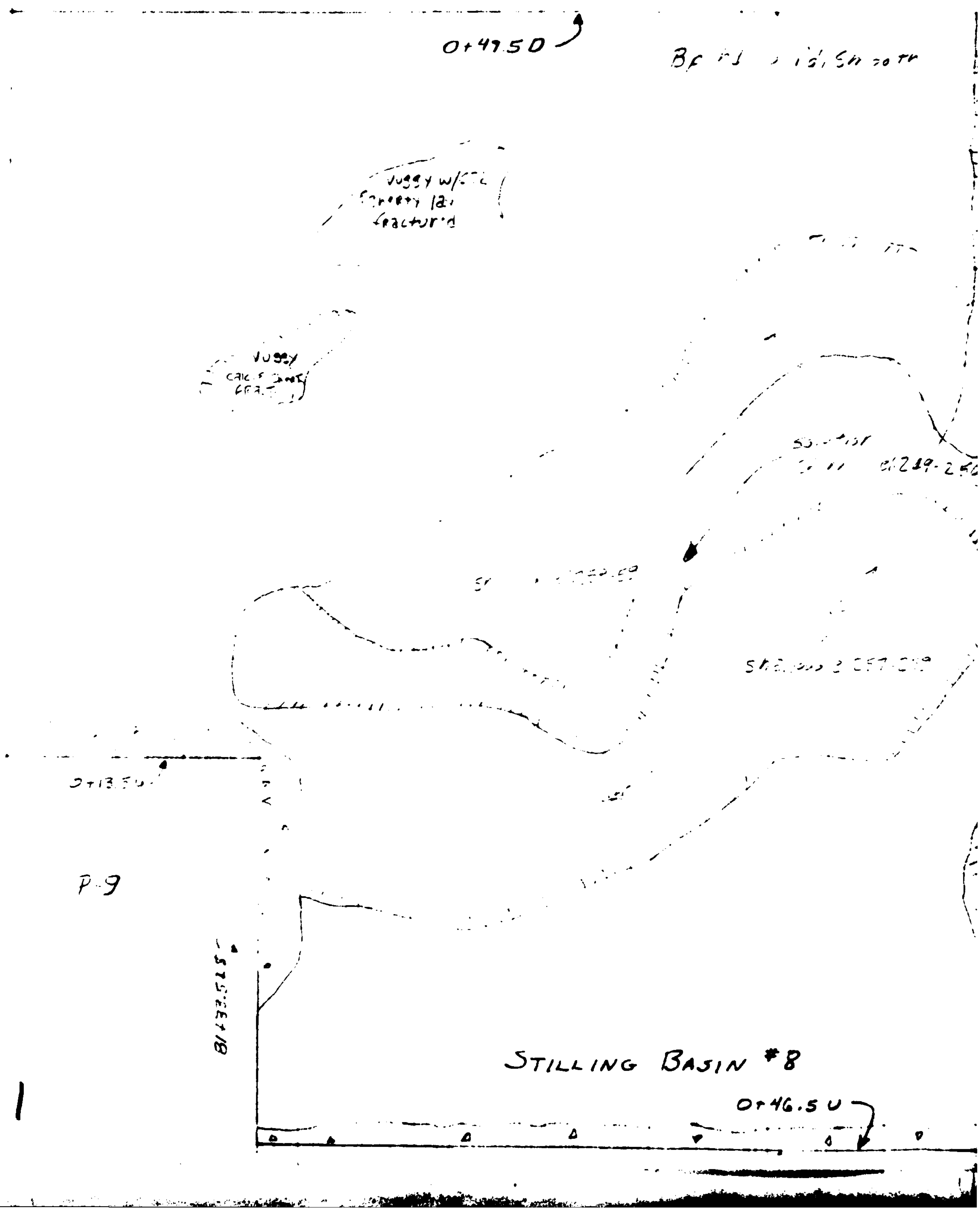
2

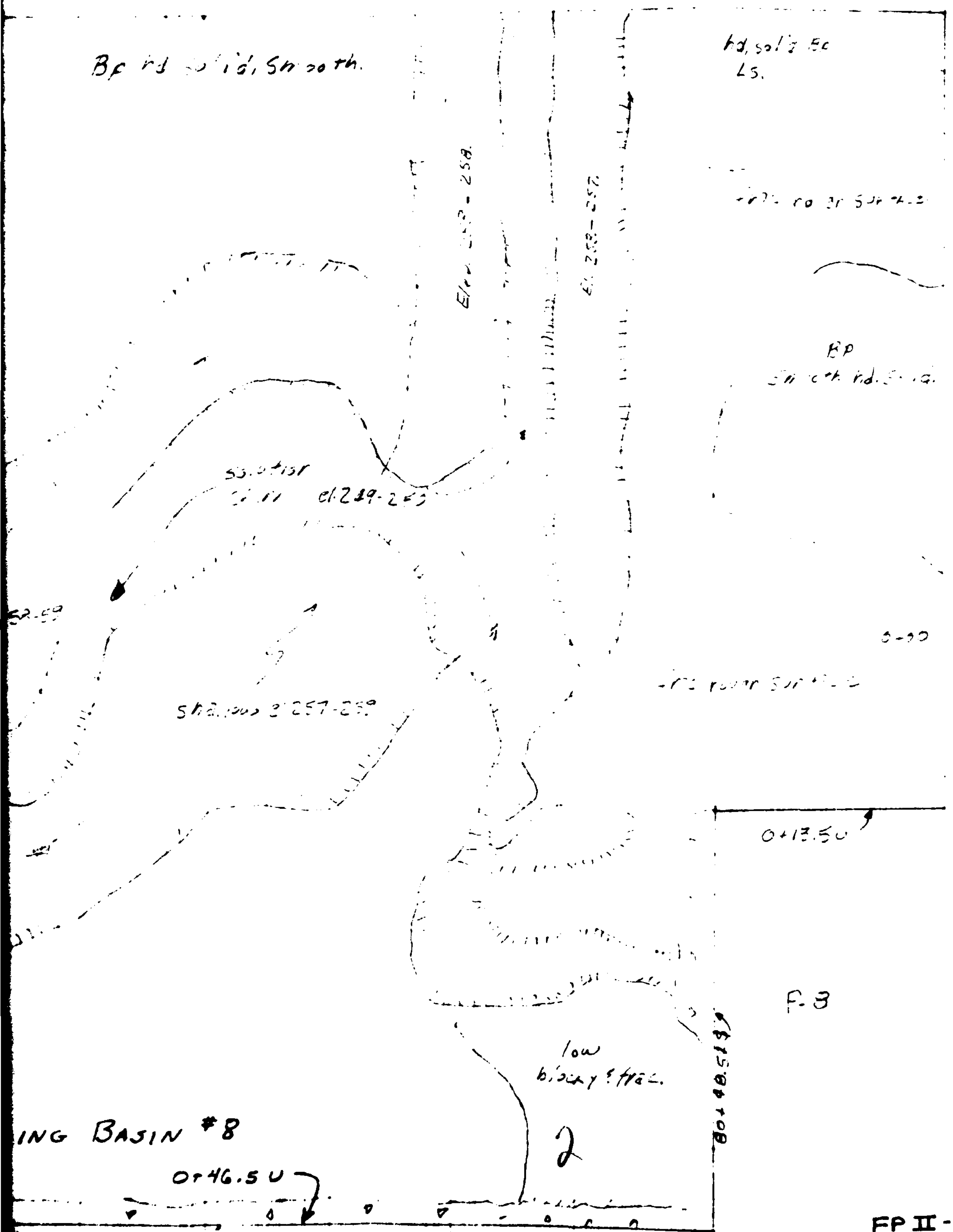
FP II-81


FRAC. 1' LOW AREA
0+49.5 D
L JTS
AVG. 3-4 SPC.
N-20-E
N-20-E
BP. HD. GR. LS. W/ LOCALIZED CHERT CONCENTRATIONS, CHERT IS FRACTURED THROUGHOUT
CALC. FLD
(JTS. AVG. 4-5 SPC.)
STA 77+70.54 S
TIGHTLY FRAC. & JOINTED
JOINTED N-85-E & N-20-E
SD. CHANNEL EL. 25 ±
0+13.5 U
STA 77+58.54 S
BF. CONC. TO EL. ± 25.5 ±
FRAC. LOOSE W/ MUD SEAMS THROUGHOUT
GATE BAY #
0+46.5 U
1

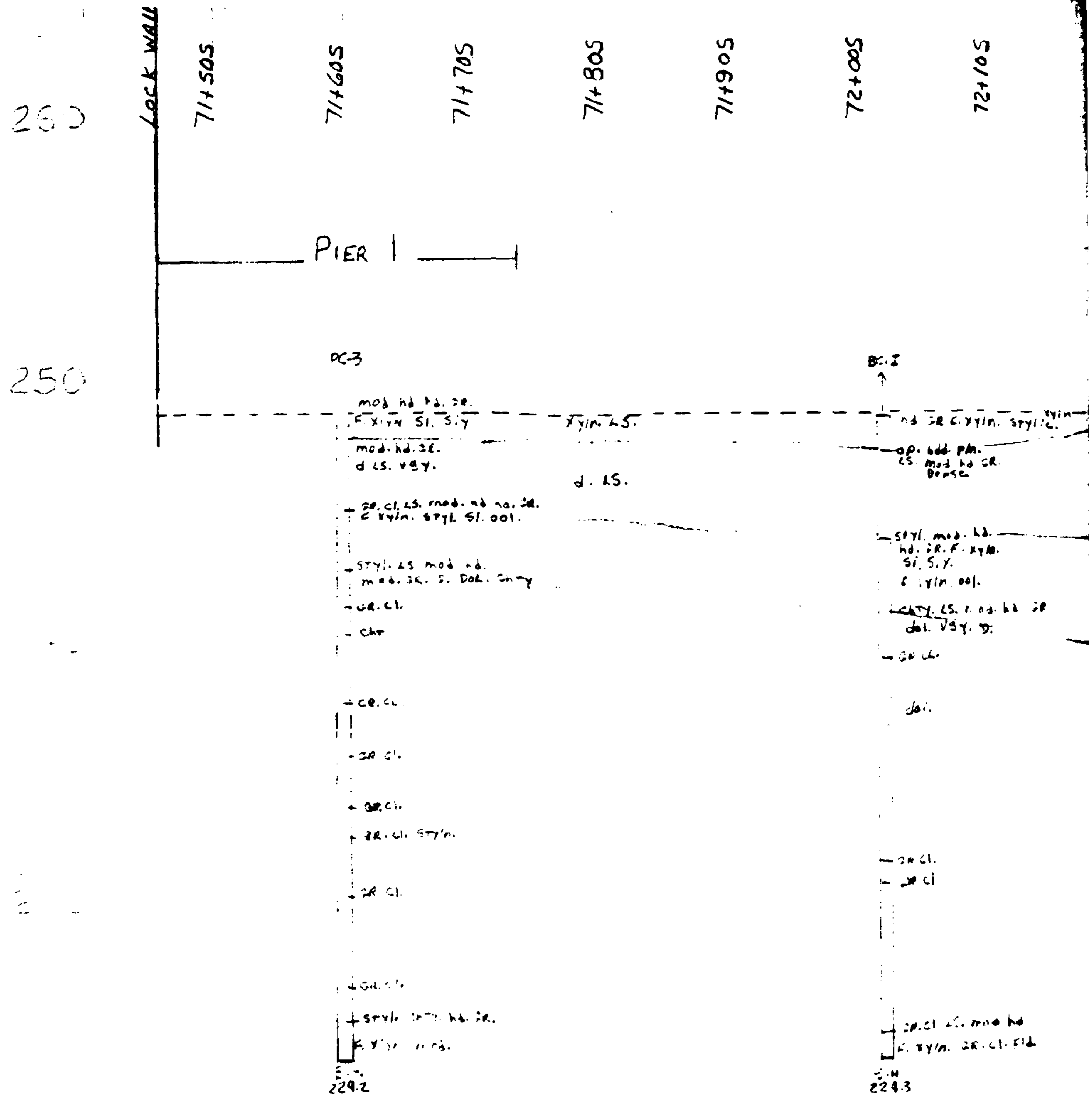

MUD SEAM
49.5 D
JTS. AVG. 3-4 SPC.
N-85-E
N-20-E
CHTY. BRN. LAYER
MUD SEAM 2-6" BELOW ROCK @ EL. 253±
EL. 253±
BOT. SOL. CHANNEL 2-3" DEEP
UNDULATING BP. W/CHERT. NOD.
(W) BR TO GR. TO GREEN LS, SHALY, CHERT. HD.
SOL CHANNEL BOT.
STA 76+53.54 S
CHERT
S, CHERT
CALC. FLD.
(JTS. AVG. 4-5 SPC.)
CHTY LAYER ½" THICK
JOINTED 1'± SPACING N-20-E & E-W
EL. 258±
JT. N-20-E & E-W
SD. CHANNEL EL. 253±
OVERBREAK CONC FROM PIER
0+13.5 U
P-5
LOOSE W/ MUD SEAMS THROUGHOUT
STA 76+73.54 S
GATE BAY #5
2
0+46.5 U

FP II-82

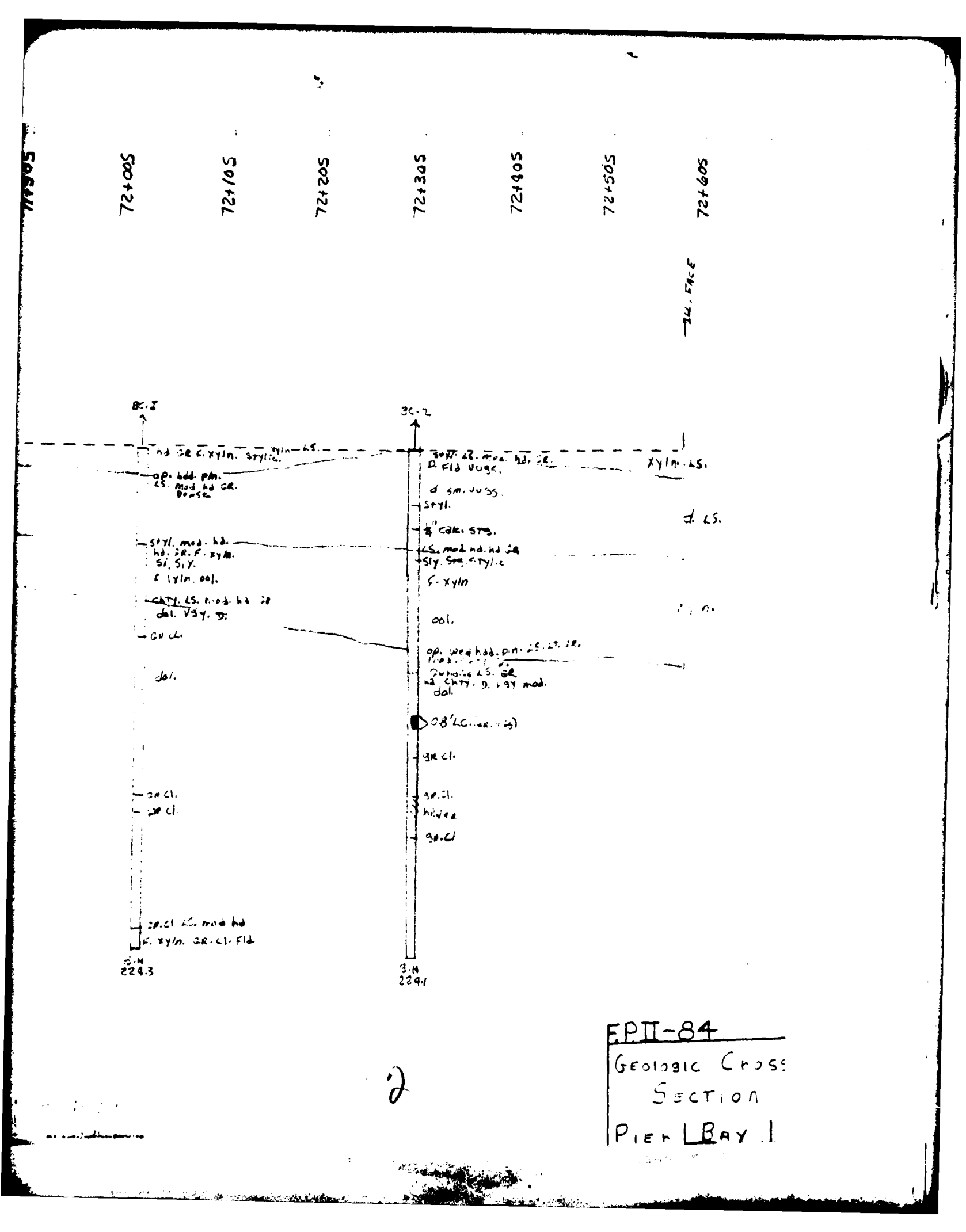

0+47.5 D
vuggy
fractured
0+13.5 U
P-9
STILLING BASIN #8
0+46.5 U


el.249-253
Shallows 257-259
0+13.50
F-3
low
blocky & frac.
ING BASIN #8
0+46.5 U

FP II-83


LOCK WALL
71+50S
71+60S
71+70S
71+80S
71+90S
72+00S
72+10S
260
250
PIER 1
PC-3
mod. hd. sr.
d. LS. VSY.
Xyln. LS.
d. LS.
gr. cl.
gr. cl.
229.2
224.3

1



EPII-84

Geologic Cross Section

Pier L Bay 1

260

72+60 S

72+70 S

72+80 S

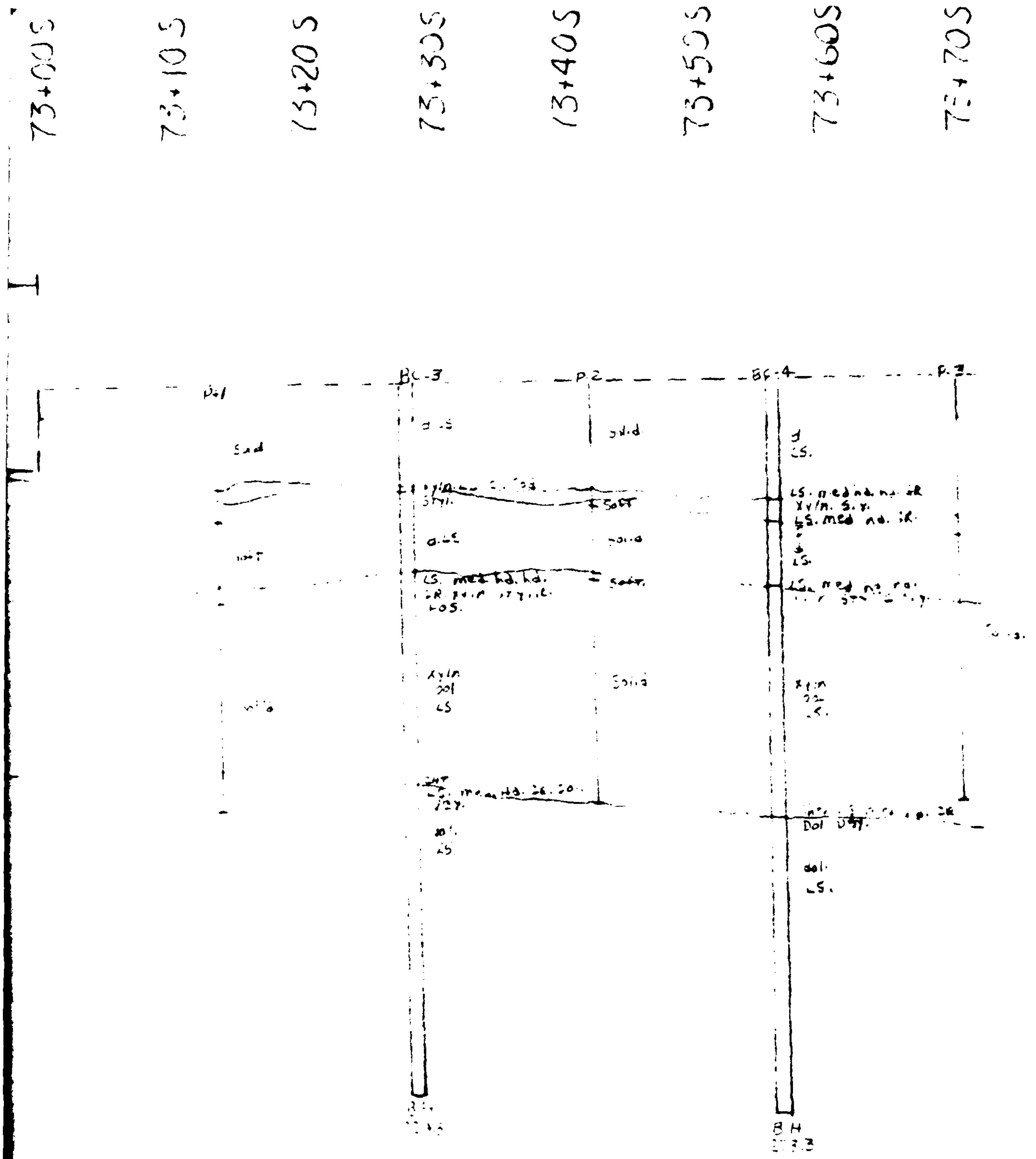
72+90 S

73+00 S

73+10 S

73+20 S

PIER 2

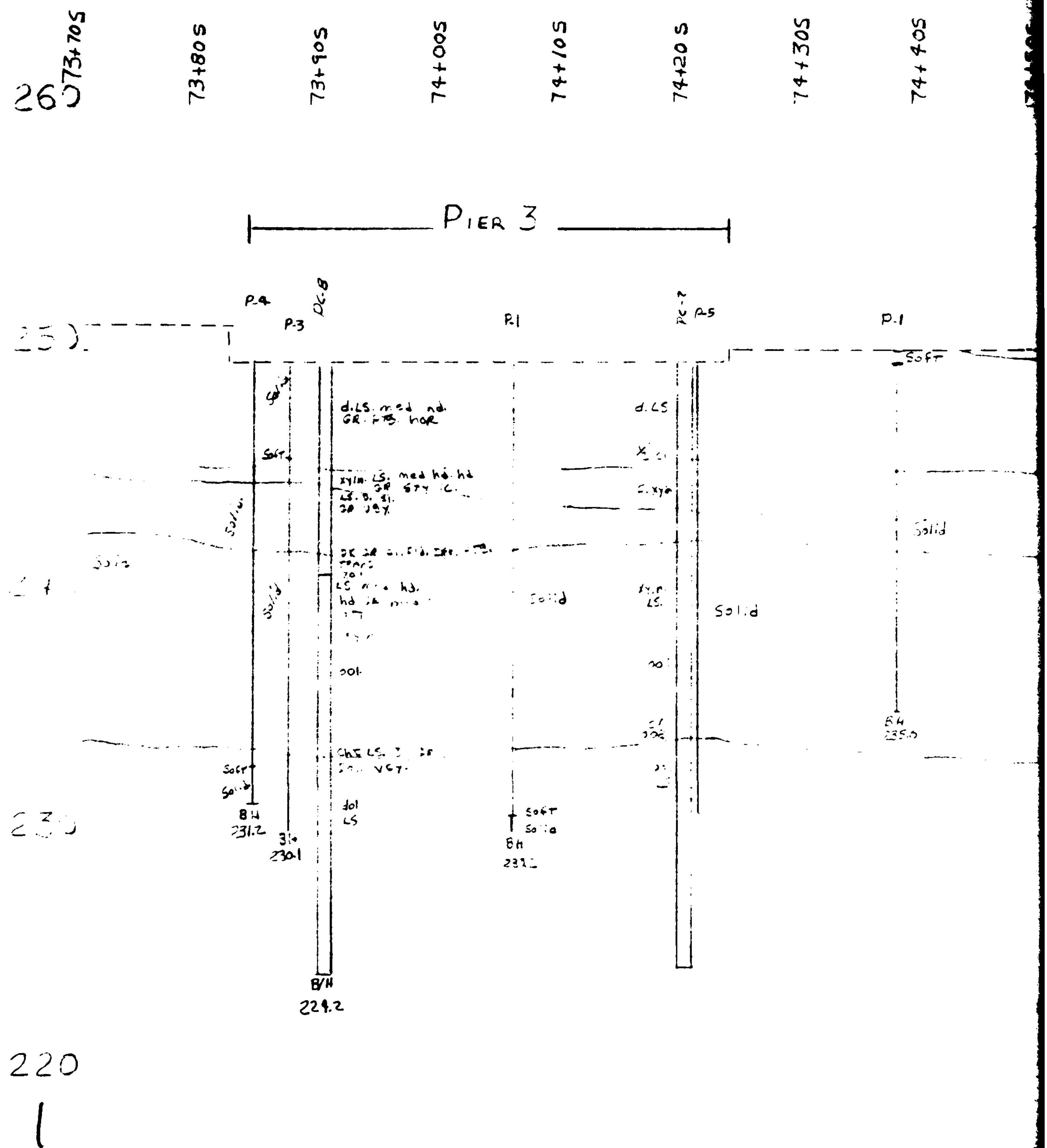


F.P. II-85

Geologic Section

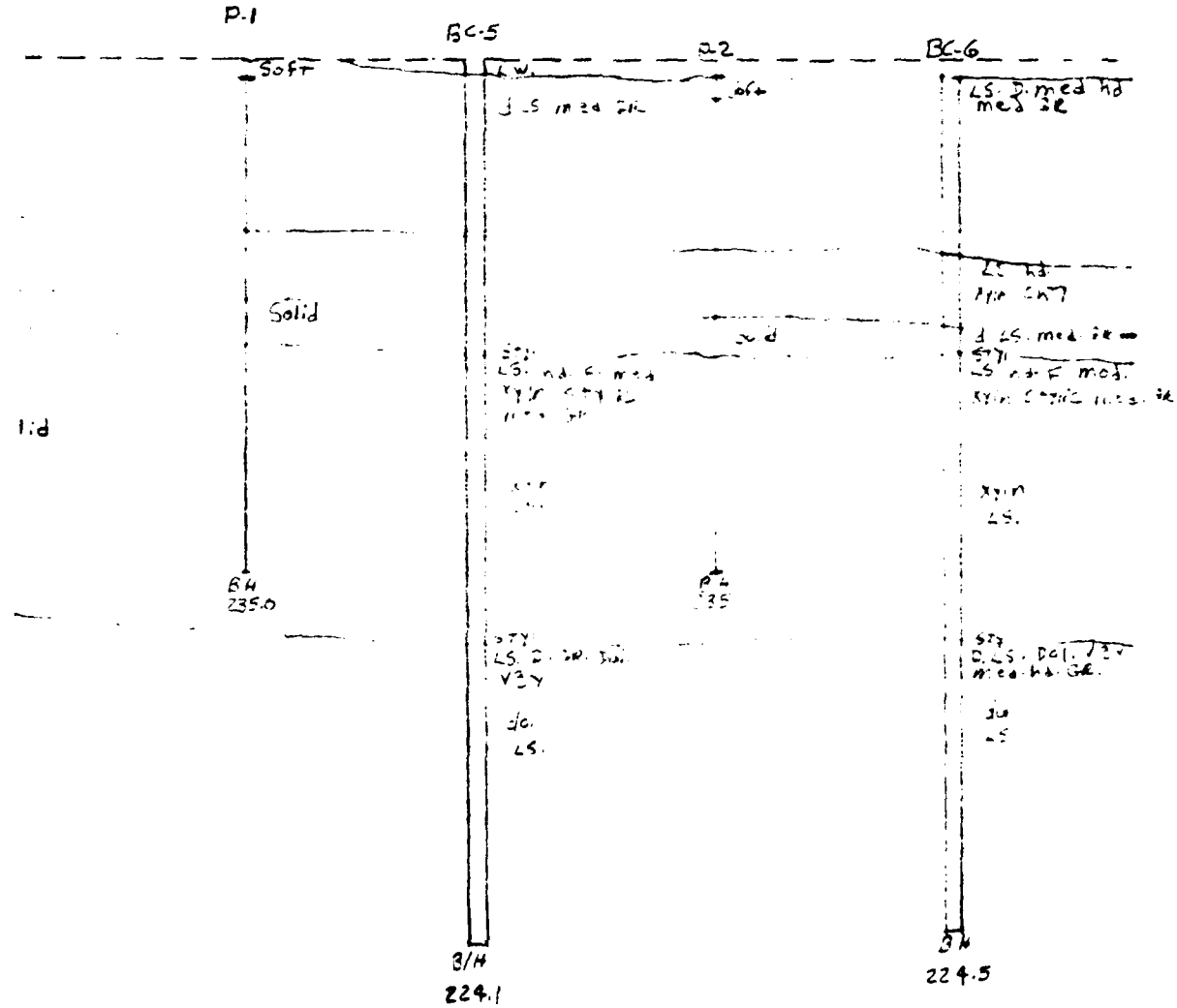
Pier 2 Bay 2

2



260
73+70S
73+80S
73+90S
74+00S
74+10S
74+20S
74+30S
74+40S
PIER 3
P-4
P-3
DC-8
P1
P-5
P.1
Soft
Solid
d.LS. med hd.
GR. FTS. hor
d.LS
Solid
BH
231.2
230.1
229.2
220
1

74+305 74+405 74+505 74+605 74+705 74+805 74+905



F.F.II-86

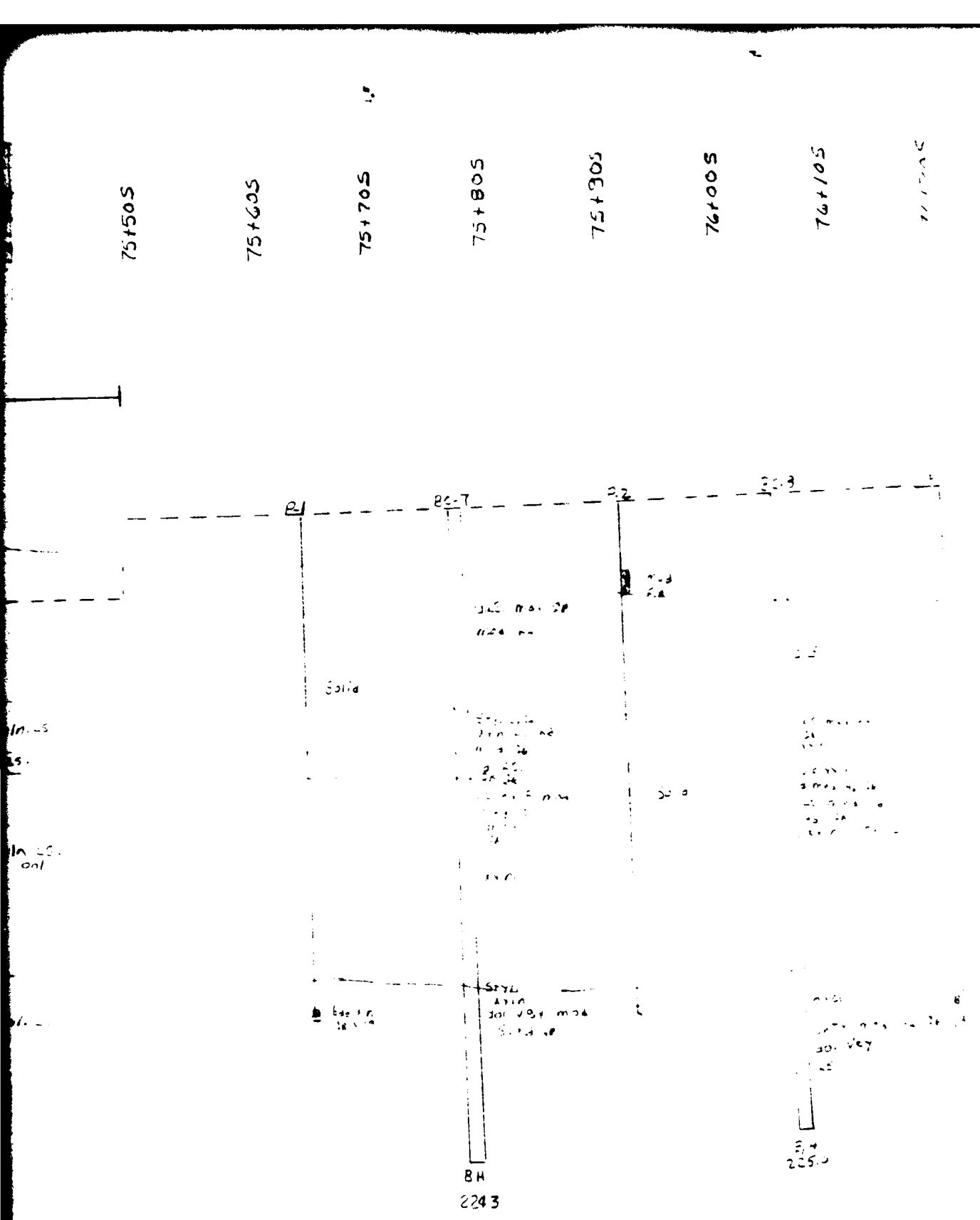
GEOLOGIC CROSS SECTION
PIER 3 BAY 3

2

74+90S
75+00S
75+10S
75+20S
75+30S
75+40S
75+50S
75+60S
75+70S

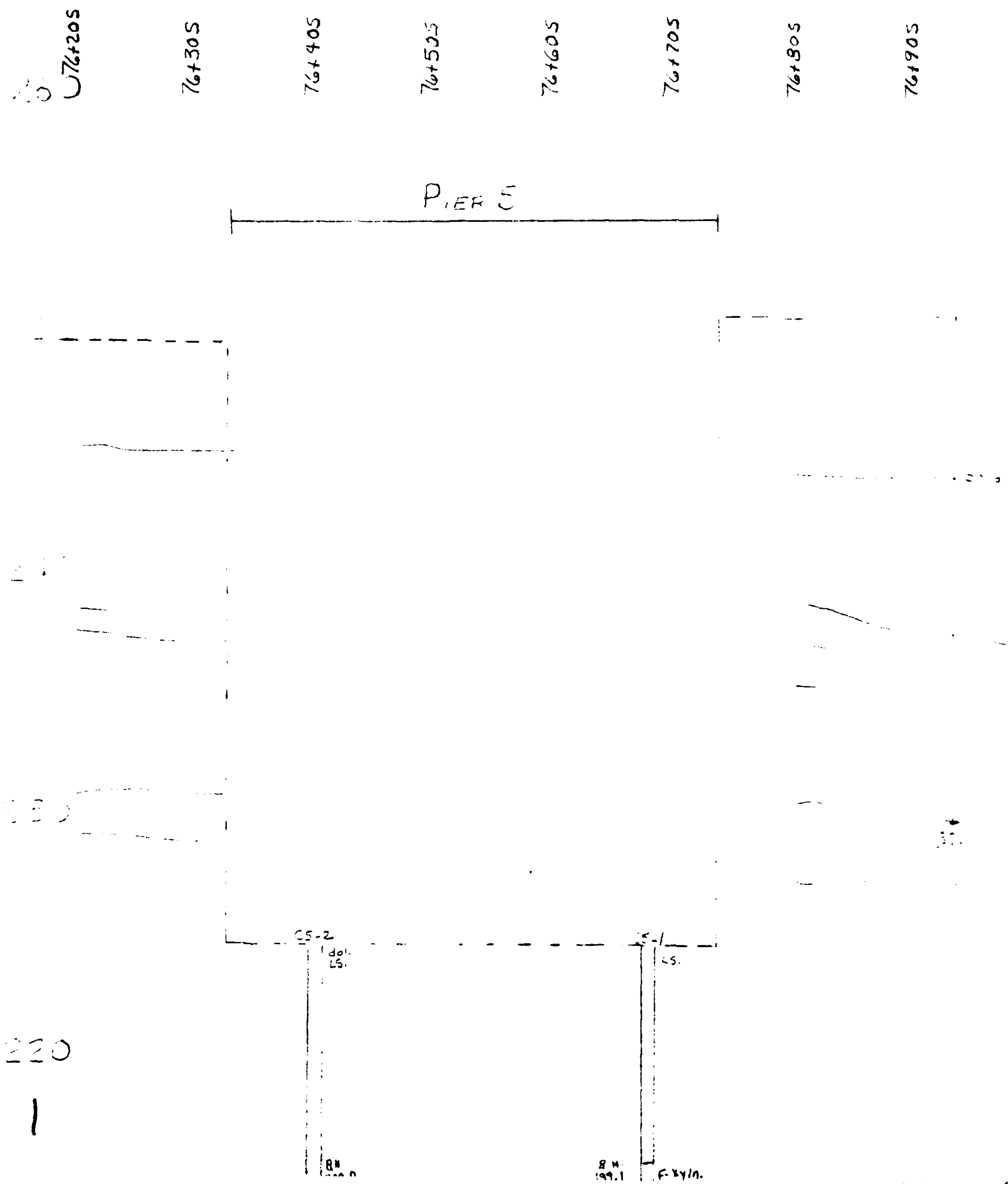
PIER 4

P3
P2
P1
P4



F.P.T.-87

GEOLOGIC CROSS SECTION
PIER 4 BAY 4


76+20S
76+30S
76+40S
76+50S
76+60S
76+70S
76+80S
76+90S
PIER 5
CS-2
dol.
LS.
LS.
B.M.
199.1
220

76+80S

76+90S

77+00S

77+10S

77+20S

77+30S

B/H
224.6

B.H.
224.5

F.P.II-22

GEOLOGIC CROSS SECTION

PIER 5 BAYS

77+505

77+605

77+705

77+805

77+905

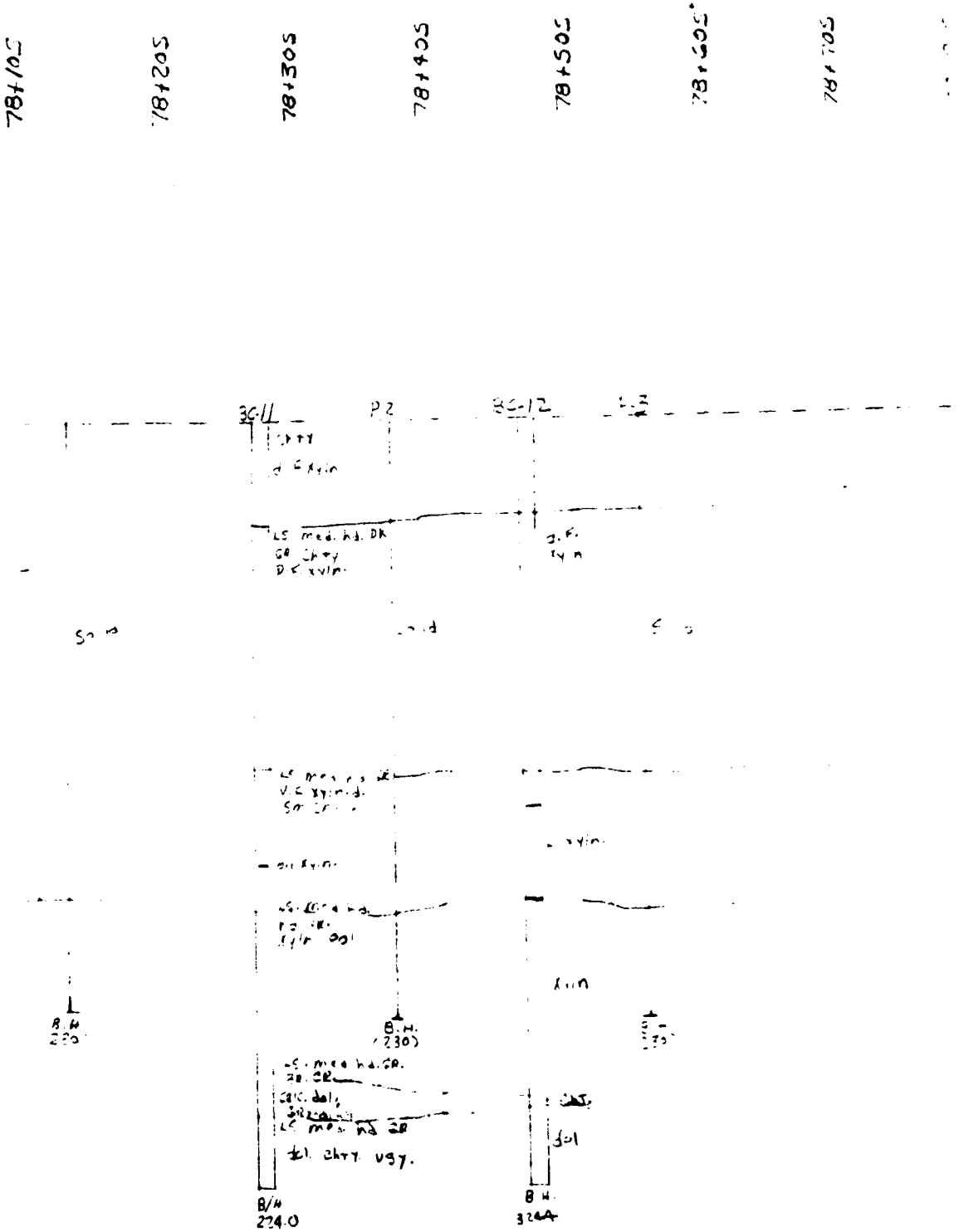
78+005

78+105

78+205

PIER 6

B/A
224



F.P II-83

Geologic Cross Section

Pier 6 Bay 6

78+805

78+905

79+005

79+105

79+205

79+305

79+405

79+505

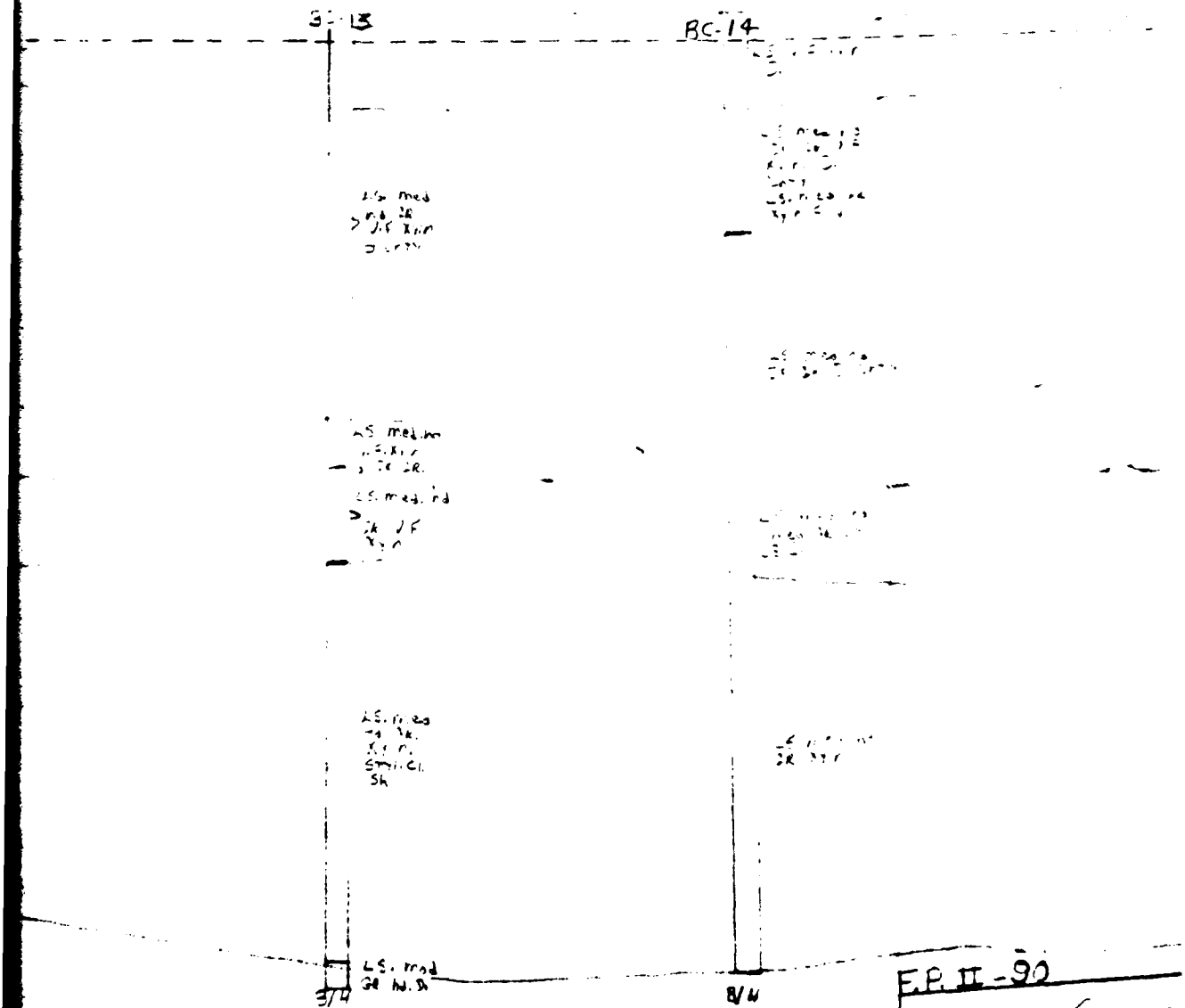
79+505

79+605

79+705

79+905

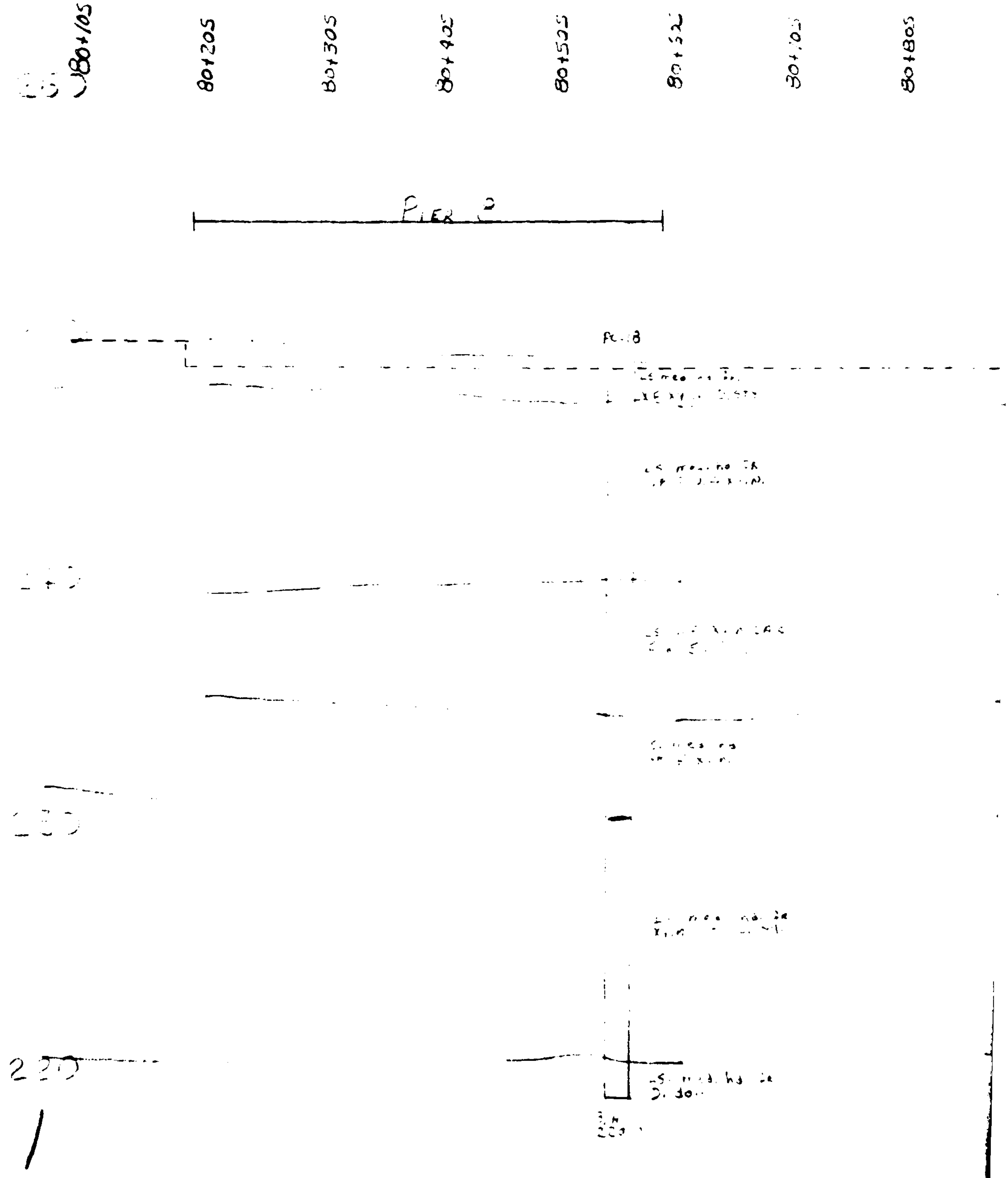
BC-14



E.P. II-90

GEOLOGIC CROSS SECTION

PIER 7 BAY 7


80+105
80+205
80+305
80+405
80+505
80+605
80+805
PIER 2
220

80+705

80+805

80+905

81+005

81+105

81+205

81+305

81+405

E.P.II-31

GEOLOGIC CROSS SECTION

PIER 8 BAY 8

2

220

82+00S

82+10S

82+20S

82+30S

82+40S

82+50S

82+60S

BC-1B

B/H 2.9.9

2

EE-22

Geologic Cross Section

Pier 9 Bay 9

82+05

82+80

82+30

83+05

83+05

83+25

83+50

83+90

PIER 10

B/H
219.6

83+30

83+90

83+50

83+72

83+80

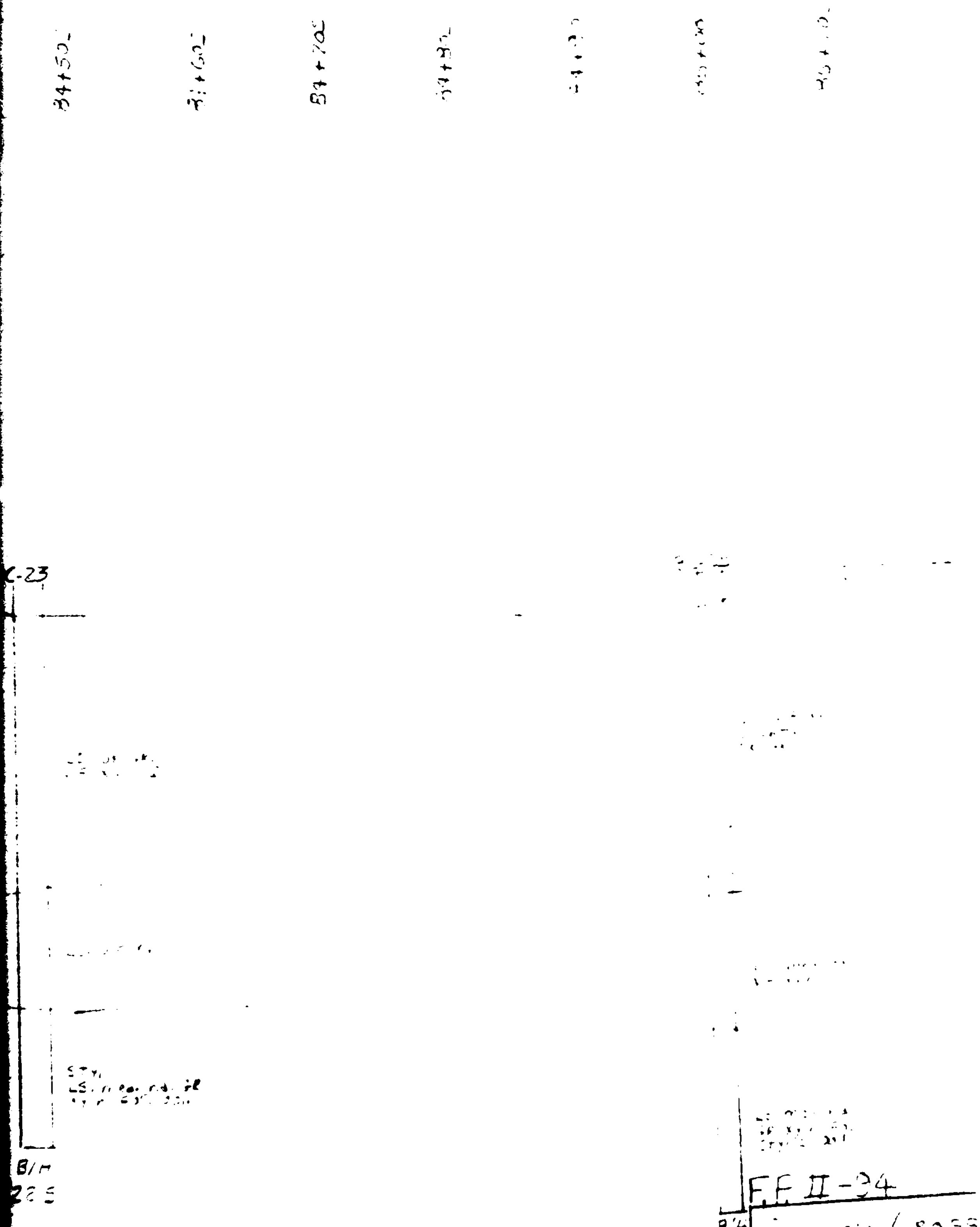
85+90

F.P.II-93

GEOLOGIC CROSS SECTION

PIER 10 BAY 10

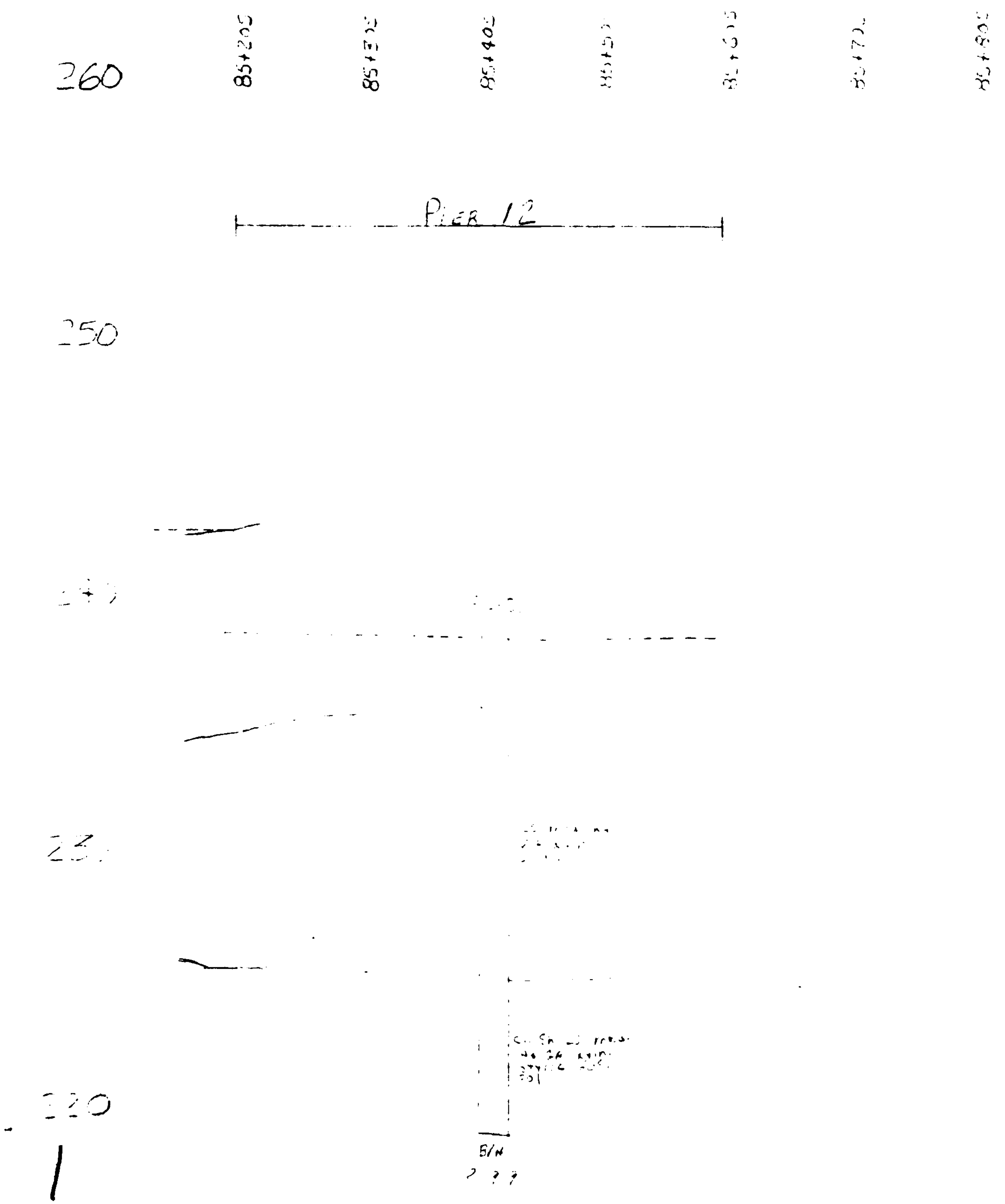
BC-23



F.F. II-34

Cross

Pier 11 Bay 11


260
85+20S
85+30S
85+40S
PIER 12
250
220
B/H

85+700

85+800

85+900

F.P II-35

Sea [illegible] Cross Section

Pier 12-


DATE:
ILME